

RUSSIAN BATTLESHIPS AND CRUISERS OF THE RUSSO-JAPANESE WAR

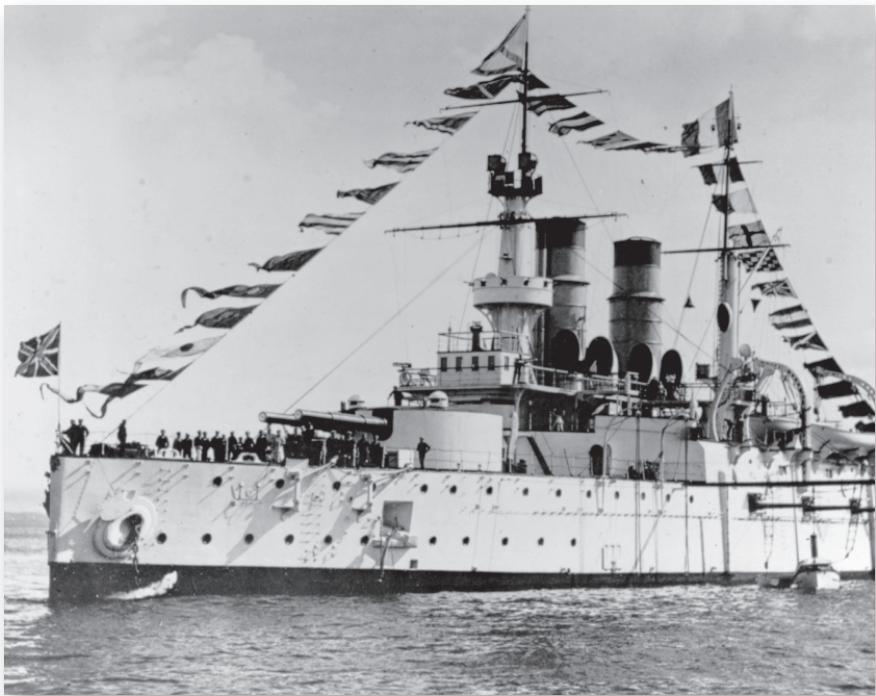


MARK LARDAS

ILLUSTRATED BY PAUL WRIGHT

NEW VANGUARD 275

RUSSIAN BATTLESHIPS AND CRUISERS OF THE RUSSO-JAPANESE WAR



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RUSSIAN BATTLESHIPS AND CRUISERS OF THE RUSSO-JAPANESE WAR

INTRODUCTION

Artist's rendition of the Russian ships sunk at the battle of Tsushima. From left to right these are: *Imperator Aleksander III*, *Sissoi Veliky*, *Oslyabya*, *Admiral Nakhimov*, *Knyaz Suvorov*, *Svetlana*, *Dmitrii Donskoi*, *Izumrud*, *Borodino*, *Vladimir Monomakh*, and *Navarin*. These were a collection of Russia's very newest and very oldest warships. (AC)



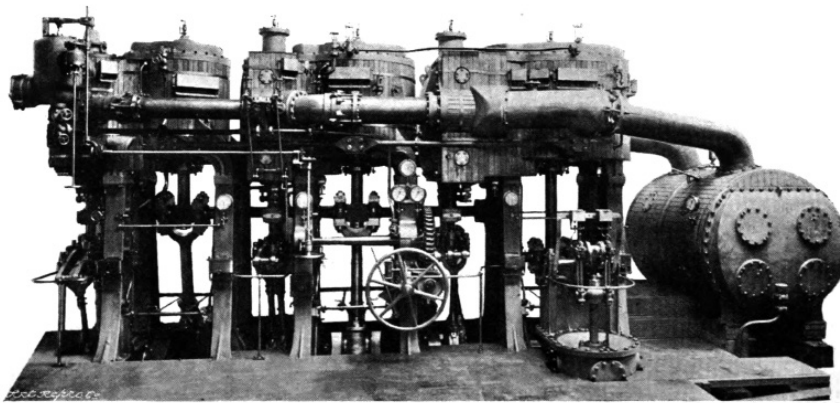
The Imperial Russian Navy ships that fought the Russo-Japanese War of 1904–05 were built between 1880 and 1905. They were drawn from the ships of Russia's Baltic Fleet. The history of the Russian major warships of the Russo-Japanese War was the history of its Baltic ships.

Russia required permission from the Ottoman Empire to enter the Bosphorus with a warship, permission the Ottomans routinely refused. Ships from the Black Sea Fleet could not exit. To construct a Pacific squadron, Russia used ships built at its Baltic shipyards or abroad. Its two main Pacific naval bases, Vladivostok and Port Arthur, had only rudimentary maintenance facilities. Warships shuttled between the Pacific and Baltic in peacetime. Wartime reinforcement of Russia's Pacific Fleet had to come from its Baltic Fleet.

The ships assigned to Russia's Pacific Squadron when the Russo-Japanese War started in February 1904 were among the most modern Russia had: seven battleships and 11 cruisers. An additional eight battleships, three coastal defense ships and eight cruisers were in the Baltic or in transit to the Pacific when the war started. Unable to participate in the Black Sea were eight battleships and five small cruisers.

The naval war turned against Russia's Pacific Squadron. A relief expedition was tardily organized. The Pacific Squadron was renamed the First Pacific Squadron. A Second Pacific Squadron left the Baltic for the Far East in October 1904, by which time the First Pacific Squadron's major port, Port Arthur, was besieged. The Second Pacific Squadron contained Russia's very newest warships, some newly commissioned and still in the late stages of construction. It was filled out by ships in transit to Port Arthur when the war started, and older warships thought capable of fighting.

After Port Arthur fell, a Third Pacific Squadron was formed and sent to reinforce the



The triple-expansion reciprocating steam engine was quickly adopted by all navies, including Russia's in the late 1880s. Pictured is one of two triple-expansion engines aboard the coastal defense ship *Admiral Ushakov* prior to installation. (AC)

Second Pacific Squadron. Made up of ships rejected by the Second Pacific Squadron's commander, Zinovy Rozhdestvensky, these were the oldest Russian Navy warships capable of steaming from the Baltic to the Pacific.

Warship design had been relatively static between 1650 and 1820. The introduction of steam propulsion in the 1820s, breechloading artillery and explosive shells in the 1840s and armor in the 1860s, and substitution of iron and steel for ship structure during that period resulted in dramatic changes in warships. By 1880 the warship had been redefined, but was still undergoing evolution. The Russo-Japanese War proved a crucial test of Russian warship design between 1880 and 1905.

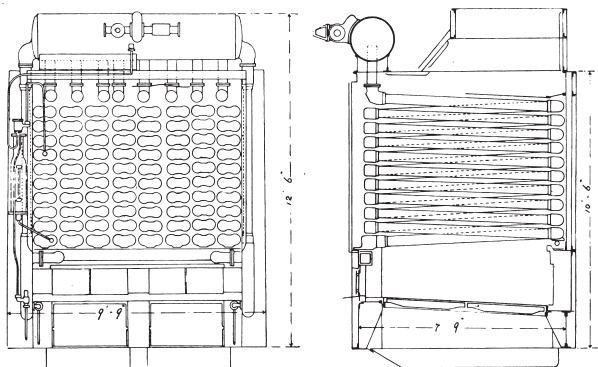
DESIGN AND DEVELOPMENT

Russia did not upgrade to the 19th century's concept of a "modern" navy until 1880. Four technologies dominated warship design between 1880 and 1905: propulsion (steam engines and boilers), metallurgy (armor and ship structure), ordnance (including torpedoes), and communications (wireless telegraphy).

Russia proved an early adopter of some technologies. It was among the first nations to embrace the self-propelled torpedo, and had an experimental radio aboard *General-Admiral Apraksin* in 1899. However, operational implementation of virtually all new technology lagged behind the United States, Japan, and rest of Europe by five to ten years. This was partly due to Russia's inadequate industrial base, more primitive than the rest of Europe and the United States. It was also due to budget limitations and an Admiralty reluctant to implement new technology.

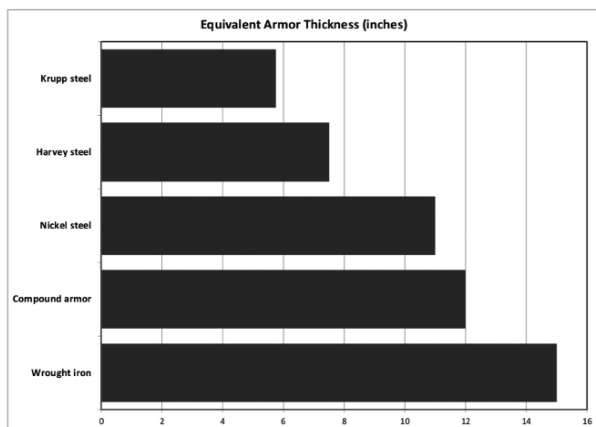
Warship development 1880–1905

The most important change in naval architecture between 1880 and 1905 was the triple-expansion steam engine. Compound steam engines, introduced in naval vessels in the 1870s, reused the engine's steam in a lower-pressure cylinder. Triple-expansion engines had a high-pressure, medium-pressure, and low-pressure cylinder. The high-pressure cylinder used steam from the boiler. The next two cylinders used steam exhausted from previous cylinders. (Some engines split medium-pressure exhaust steam between two low-pressure cylinders; although a four-cylinder engine, they still had three stages.)



The Belleville water-tube boiler was developed in France in 1891, and quickly adopted by Imperial Russia to power its warships. This shows a rear (left) and side (right) view of a Belleville boiler. (AC)

Armor went through tremendous evolution between 1885 and 1900. A shot which could penetrate 10.4 inches of compound armor would be stopped by anything over five inches of Krupp steel or 6.5 inches of Harvey steel. The various forms of armor had the same density. Newer steels offered greater protection at less weight. (AC)



The Royal Navy first installed triple-expansion engines in warships in 1885. Triple-expansion engines roughly doubled the amount of energy extracted from the coal burned, eliminating the need for auxiliary sail propulsion. All navies, including Russia's, quickly switched to triple-expansion engines. All Russian cruisers and Russian battleships started after 1888 used triple-expansion engines. By 1904 it was mature technology. While some nations, notably Great Britain, were experimenting with steam turbine propulsion, Japanese and Russian ships then

exclusively used reciprocating steam engines. All but Russia's oldest warships had triple-expansion engines.

Steam engines were fueled by boiler-produced steam. This period saw the shift from fire-tube boilers to water-tube boilers. Fire-tube boilers passed tubes filled with heated gas through a sealed water container. The marine version, known as a Scotch boiler, was a horizontal cylinder containing water through which flues passed.

Water-tube boilers passed water through tubes in the firebox. This provided more efficient heating, transferring more heat more quickly. France installed the first water boilers in a major warship in 1891. Britain followed in 1895. Japan started using water-tube boilers in 1897, with the United States following in 1899. Russia proved an early adopter of water-tube boilers in its cruisers, installing them in *Rossia*, launched in 1892, but did not introduce them in battleships until the *Peresvet* class, which entered service in 1901. Russia favored Belleville boilers, an established and reliable French design. Two major warships built in the United States, *Retvizan* and *Varyag*, had less reliable Niclausse boilers.

Armor also went through a dramatic transformation in the 1890s. When armor was introduced in the 1860s, wrought iron was the armor of choice. Steel was harder, but brittle. Hit hard enough, steel shattered. By 1880 compound armor – wrought iron with steel welded to the face – was the standard.

In 1889 nickel-steel armor became available. Adding nickel to steel combined steel's hardness with wrought iron's toughness. While only a little more resistant than compound armor, it was simpler, cheaper, and more reliable. In 1890 Harvey steel was invented. It treated a steel plate, typically nickel steel, by exposing one face to carbon and quenching it with oil and then water. The resulting plates had extremely hard outer edges. In 1894 Krupp improved the Harvey process with a more sophisticated method of hardening the plate. Five inches of Krupp armor produced the same protection as 6½ inches of Harvey steel, 9½ inches of nickel steel, and 10½ inches of compound armor.

Russia started out using compound armor. It first used both nickel steel and Harvey steel in 1892, building *Sissoi Veliky*

with nickel steel and *Rossia* with Harvey steel. The Russian Navy adopted Krupp armor slowly because of Krupp's formidable royalties to license the process. Not until 1899 were Russian warships built protected by Krupp steel.

Regardless of the armor used, the protection offered was adequate. No Russian battleship, even the "lightly" armored *Peresvet* class, experienced a penetrating hit by a Japanese 12in. shell. No Russian battleships were sunk by gunfire at the battle of the Yellow Sea. The battleships sunk by gunfire at Tsushima sank owing to runaway fires started by Japanese shells.

Naval artillery stabilized in the 1880s. There were continual incremental improvements through the 1890s and through the Russo-Japanese War but no dramatic changes in artillery size or performance. The 12-inch breechloader became the battleship main gun for all navies, with calibers (the ratio of length to bore diameter) gradually increasing. The big change was a result of dramatic increases in combat range over the period. In 1890, 1,500 yards was considered the maximum effective range of a 12-inch gun, even though it could fire much farther. Ships needed to be close to ensure hits. The rates of fire of large guns with shells nine inches in diameter or greater was slow. Theoretically, a Russian 12-inch naval gun could load, fire and reload every 90 seconds. In reality, three to five minutes between shots was typical.

Fire control improved dramatically over the next 15 years, as did the desire to keep battleships outside torpedo range. At the battle of the Yellow Sea the two sides engaged at 15,000 yards. Both sides were accurate within 12,000 yards. Russian shells were filled with cordite, while Japan used the more powerful shimose powder (which used picric acid). Shimose powder increased hits' ability to start fires. It had no more penetrating power.

The standard torpedo for the Russian Navy had a 15in. diameter, and was powered by compressed air. Most other nations, including Japan, had gone to the more powerful 18in. torpedo. To a large extent, this did not matter. No Russian battleship or cruiser managed to hit a Japanese warship with a torpedo.

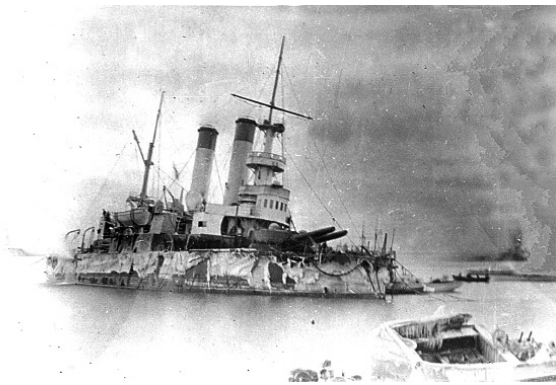
The final technology affecting the Russo-Japanese War was radio or wireless. The first broadcast radio stations were established in 1897. By 1902 Marconi began testing radio aboard ships. By 1904 Japan had radios on scout cruisers. A radio-equipped cruiser warned Admiral Togo of the Russian fleet's entry into the Tsushima Strait, allowing Togo to intercept the Russians as they exited the strait.

Russia installed a radio broadcast station on *General-Admiral Apraksin* in 1899 after *Apraksin* ran aground in that November. The radio was used to coordinate salvage efforts. Despite this, the experiment was not expanded. Radios were not installed operationally until the Russo-Japanese War, and then only on a few cruisers.

Through most of the 1880s Russia's primary naval foe was Great Britain. Its battle fleet existed to protect the Russian coasts along the Baltic and



The Russian Navy armed its battleships and armored cruisers with torpedoes. The 15-inch diameter torpedo was standard for these ships. Shown are torpedoes being loaded on the battleship *Tsesarevich*. (AC)



When *General-Admiral Apraksin* ran aground in November 1899 the Russian Navy installed an experimental wireless to help with salvage efforts. Despite the utility of this “wireless telegraph” during salvage efforts, Russia failed to pursue installing wireless aboard ships until the Russo-Japanese War started. (AC)

Black Seas, where the cruisers were to conduct commerce raiding against Britain’s mercantile fleet. Its battleships were designed to operate short ranges in sheltered seas, while cruisers were built for long range over open ocean.

In the early 1890s Russia realized its cruisers might get trapped in frozen ports if war started in the winter. Russia sought an ice-free Pacific port in Korea or China. Securing Port Arthur on China’s Liaodong Peninsula in 1897 meant Russia needed a battle fleet to defend it. Russian battleships built after the mid-1890s reflected this shift, being built with higher freeboard to

operate in oceanic waters and with longer range to allow the ships to transit between the Baltic and the Pacific.

Battleships and coastal defense ships

The Imperial Russian Navy built only one battleship prior to 1880: *Petr Velikkii*, completed in 1876. *Velikkii* belonged to the first generation of seagoing ironclads such as Britain’s *Warrior* or France’s *Gloire*. Naval architecture advanced so quickly that it was obsolescent in 1869 when laid down and obsolete when it entered service. Russia built no more battleships until the middle of the 1880s, with the three-ship Ekaterina II class in the Black Sea and *Imperator Nikolai I* in the Black Sea.

Imperator Nikolai I carried a main battery of 12in. guns mounted centerline in a twin-gun turret in a fully enclosed turret. It carried a mixed secondary battery with four 9-inch and eight 6-inch guns on broadside mountings. To protect against torpedo boats it was armed with five Gatling-style 5-barreled 3-pounder (47mm) guns on each broadside. Finally, it carried five torpedo tubes: two fixed tubes on each broadside (one forward

A

THE TORPEDO ROOM

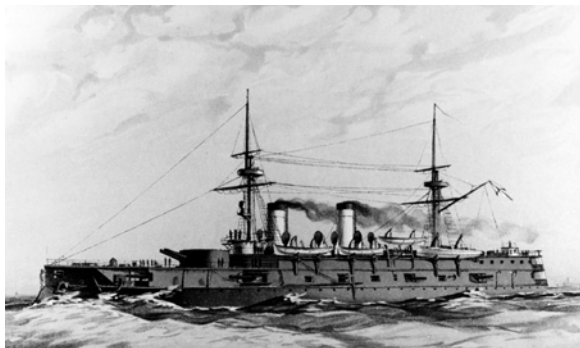
Both Russian and Japanese battleships and armored cruisers of the Russo-Japanese war carried torpedo tubes. They were always fixed in the hull and always single mounts. The ship had to be aimed when firing a torpedo. This meant the broadside torpedoes were always launched perpendicular to the direction the ship was traveling. While the single torpedo tube mounted in the bow or stern (when carried) was always mounted above a ship’s waterline, some broadside torpedoes were mounted in tubes that opened below the waterline. This avoided the shock of a torpedo hitting the water when launched from a deck-mounted tube, theoretically improving the accuracy and increasing the miniscule chance a single torpedo might actually hit a target.

This plate shows the torpedo room in which a broadside, below-water torpedo tube is mounted. A team of sailors is loading a torpedo into the single tube. At this point the outer door of the torpedo tube is closed. Once the torpedo is slid into the tube and the outer door sealed, the outer door is opened and the torpedo launched.

In 1904 the standard Russian torpedo was 15 inches in diameter, and powered by compressed air that ran through a turbine that moved the propeller. It had a warhead of around 200 pounds. This was enough to punch a hole in any ship, but while a single hit would be disabling, it was unlikely to sink a battleship or armored cruiser.

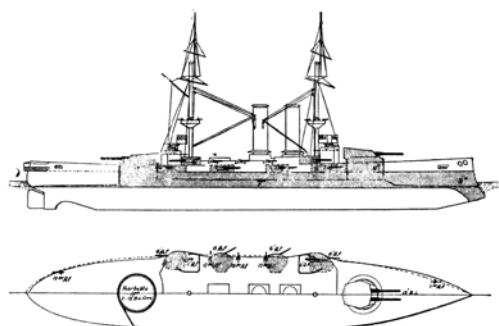
Torpedoes were also short-range weapons. In 1905 Russian torpedoes could travel only 1,000 yards. Admirals preferred that their expensive battleships fight at ranges where fire from smaller ships could not reach the battleships. Since battleships exchanged fire at ranges typically between 5,000 and 12,000 yards during the Russo-Japanese War, opportunities for battleships to fire torpedoes were rare.



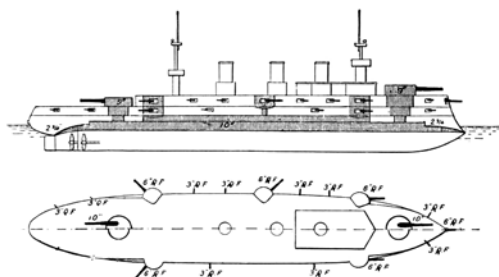


Imperator Nikolai I, shown here in an 1892 lithograph made shortly after it entered service, was the template for all future Russian battleships participating in the Russo-Japanese War. (USNHHC)

The Peresvet class was Russia's attempt to build battleships with armored cruiser speeds. It is compared to the more conventional design of the contemporary Royal Navy Duncan-class battleship in this illustration from a 1901 *Scientific American* article. (AC)



BRITISH FIRST-CLASS BATTLESHIP "DUNCAN," CLASS OF SIX SHIPS.



RUSSIAN FIRST-CLASS BATTLESHIP "PERESVIET," CLASS OF THREE SHIPS.

and one aft on each side) and a fixed tube firing aft. It had a compound steam engine and was protected by compound armor, both standard when construction started.

Imperator Nikolai I was the template for all subsequent Imperial Russian battleship and coastal defense ships until the dreadnought era. Except for the *Peresvet* class and Russian coastal defense ships (armed with 10-inch main batteries), subsequent Russian battleships carried 12-inch guns. All battleships begun after 1890 had two main turrets to the *Imperator Nikolai I*'s one.

Only *Gangut* (started in 1888 and wrecked in 1897) had one turret. Except for *General-Admiral Apraksin*, ships mounted two main guns per turret. (*Apraksin* mounted one gun on its after turret.) All main guns were mounted centerline. The Russian Navy avoided mounting main guns in wing turrets.

The mixed secondary battery was also repeated. *Nikolai I* carried 9-inch and 6-inch guns, and subsequent designs typically carried 6-inch and 3-inch guns. They were intended to compensate for the main guns' slow rate of fire. Secondary guns were intended to produce "smothering fire" suppressing enemy battleships' gunfire. A battleship successfully silencing its enemy could close and finish off its opponent at ranges where the slow-firing main guns would hit. Quick-firing 3-pounder and 1-pounder (37mm) guns were retained for defense against torpedo boats. The single barrel Hotchkiss quick-firing gun, introduced in 1886, replaced the more complex multi-barrel mountings in subsequent designs.

All subsequent Russian battleships and coast defense ships carried torpedoes. Torpedo mounts were fixed broadside or ahead and astern. Most, including all torpedo tubes firing ahead and astern, were mounted above the waterline. Occasionally a pair of broadside tubes was mounted below the waterline, one per side. The Imperial Russian Navy standardized on 15-inch torpedoes, although the *Peresvet* class carried 18-inch torpedoes in its submerged tubes.

Imperator Nikolai I and *Navarin* used compound armor. The coastal defense ships also used compound armor, probably because facilities capable of producing more modern armor were at capacity, with compound armor more readily available. Nickel steel was used subsequently (*Sissoi Veliky*, *Poltava* class), followed by Harvey steel (*Peresvet*, *Oslabya*), with *Pobeda* and all succeeding battleships using Krupp steel.

Battleships built after *Imperator Nikolai I* used triple-expansion steam engines, rather than *Imperator Nikolai I*'s double-expansion compound engines. The Royal Navy introduced triple-expansion engines in 1885. *Nikolai I*'s engines had already been ordered by then. *Nikolai I* used fire-tube boilers, a practice continued in the coastal defense ships and

battleships through the Poltava class. Starting with the *Peresvet* class, water-tube boilers were used.

With few exceptions, each class of battleship was more capable than the previous class. Armor got better, engines became more powerful and more reliable. Guns grew more powerful. Speeds increased, especially after the introduction of water-tube boilers. While *Nikolai I* was capable of a top speed of only 14.5 knots, using triple-expansion engines added a knot to the top speed of the *Sissoi Veliky* and the Poltava class. Switching to water-tube boilers gave *Peresvet* and later battleships a top speed of 18 knots.

Initially, the battleships that fought the Russo-Japanese War were designed to protect Russia's Baltic Sea coast, control the Baltic Sea and project power into the Mediterranean. These ships, *Nikolai I*, *Navarin*, *Sissoi Veliky*, the Poltava class, and the coastal defense ships were intended to operate in the shallow, protected waters of the Baltic and Mediterranean.

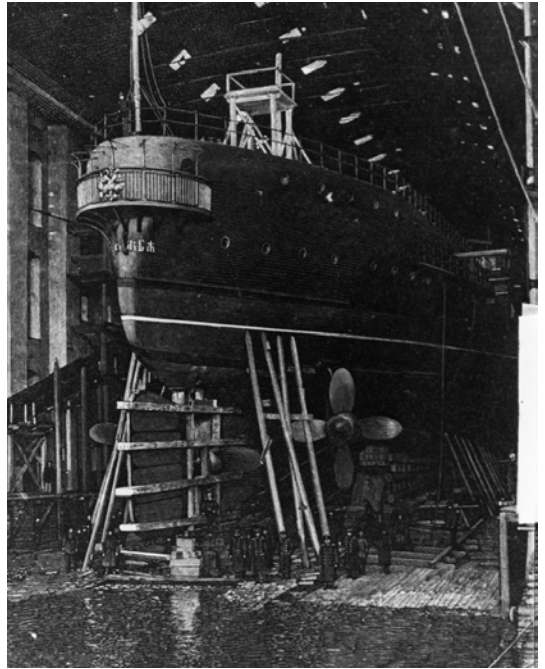
They had limited endurance. It was expected they would always be close to a friendly base. They were built with low freeboard, since the Baltic could not produce the large rolling waves of the Roaring Forties or North Pacific. Since they were expected to face the small battleships of the Swedish, Danish or German navies, they were smaller than the warships of Atlantic or Pacific nations.

In 1894 priorities shifted. Russia's increased interest in the Far East required upgrading its Far East presence. Starting with the *Peresvet* class, ordered in 1895, a new type of battleship entered Russian service. These ships were 2,000 tons larger than the Poltavas, increasing displacement by over 25 percent. They had higher freeboard, with the secondary armament mounted higher allowing use in high seas.

The *Peresvets* were the first class with water-tube boilers, permitting a two-knot increase in maximum speed. These ships had a 10-inch main battery, to allow a greater percentage of weight to be allocated to engines and speed. Initially they were labelled cruiser battleships, intended to combine the function of both. However, propulsion improvement soon made 18 knots a standard battleship speed.

While *Retvizan* had a lower profile than the *Peresvets*, both *Tsesarevich* and the Borodino class, intended to operate from Port Arthur, reverted to high freeboard and secondary guns mounted high on the hull. Except for the Borodinos, all battleships started after 1895 had an endurance between 5,500 and 8,000 nautical miles. The Borodinos' endurance was only 2,600nmi, closer to the 2,000 to 3,000nmi endurance of the earlier battleships.

While the *Peresvet* class was a largely domestic design, Russia designed its next set of battleships using assistance from France, which became a Russian ally in the early 1890s. The *Peresvets* were not completely successful, and Russia wanted to start with a new design. The result was *Tsesarevich*, designed and built in France. This design was similar to the French *République* class, with four 12-inch and 12 6-inch guns, all in twin turrets.



Russia's only shipyards capable of building large ocean-going warships were clustered in and near St Petersburg: Baltic Works, Admiralty and Galeryi Island shipyards. This is *Oslabya* in the launching ways. (USNHHC)

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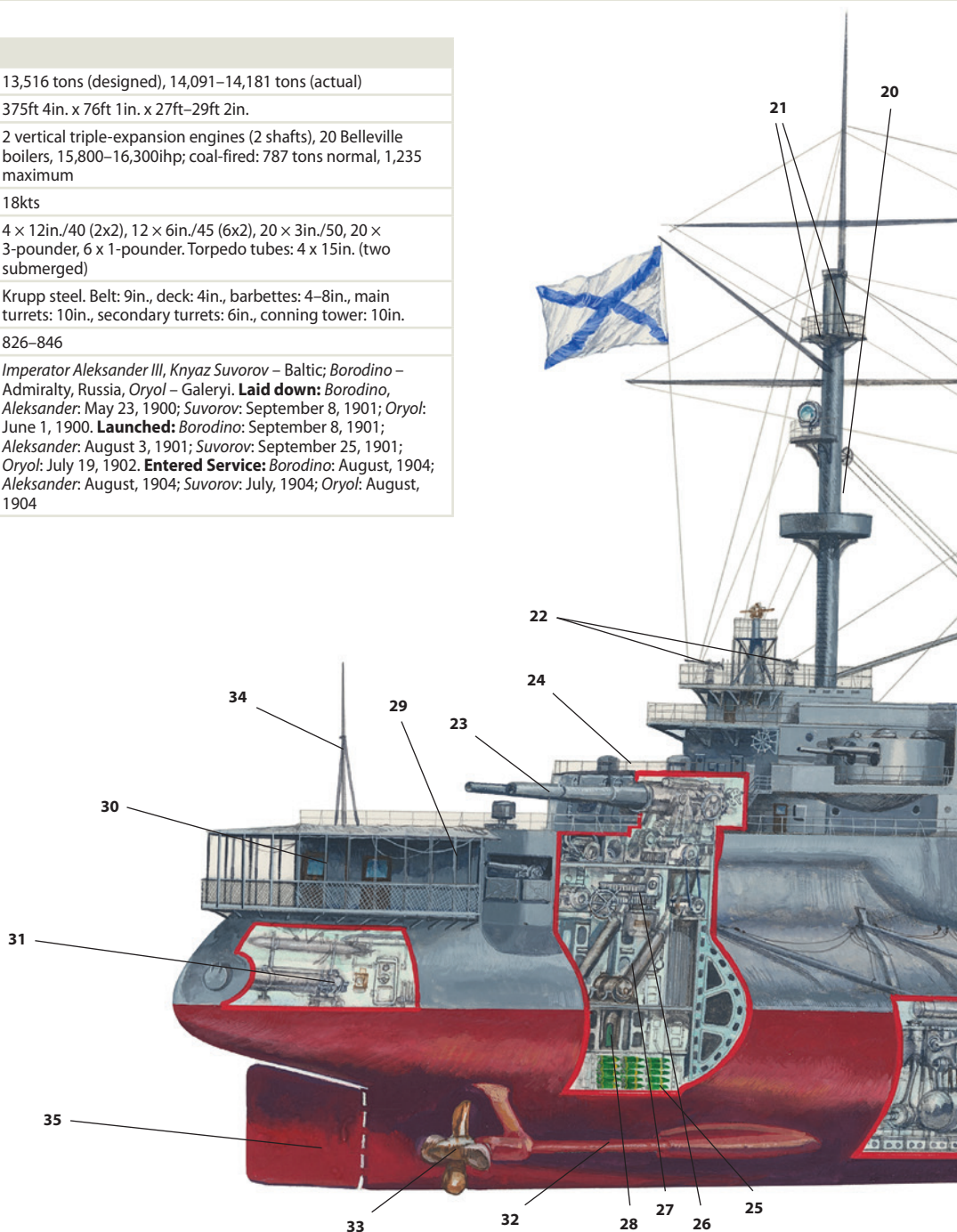
BORODINO-CLASS BATTLESHIP

The Borodino-class battleships were the last pre-dreadnought battleships launched by the Imperial Russian Navy before the Russo-Japanese War. They represented the state of the art of Russian pre-dreadnought naval architecture in 1904.

The design of the *Borodino* was a development of the *Tsesarevich*, designed in cooperation with France and intended as a prototype for future Russian battleships. However, detailed plans for *Tsesarevich* were incomplete and would not be finished when construction was scheduled to begin. Instead the Russian admiralty ordered new plans using the sketch design of *Tsesarevich* as a starting point.

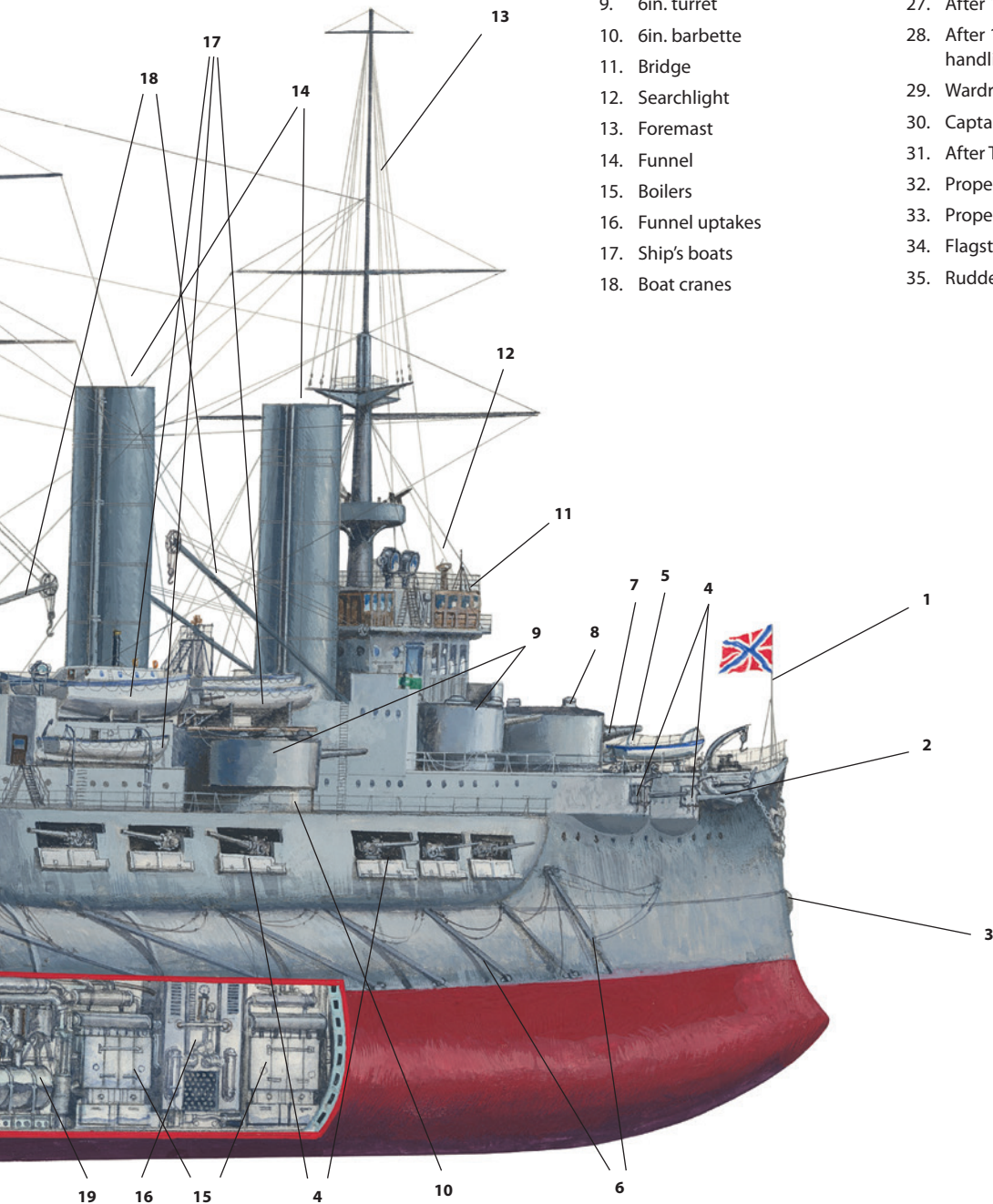
Five ships were started, the most battleships ever built to a single design by Russia. Four were sent to the Pacific as part of the Second Pacific Squadron, with construction rushed to complete them. The fifth ship, *Slava*, was not commissioned until October 1905.

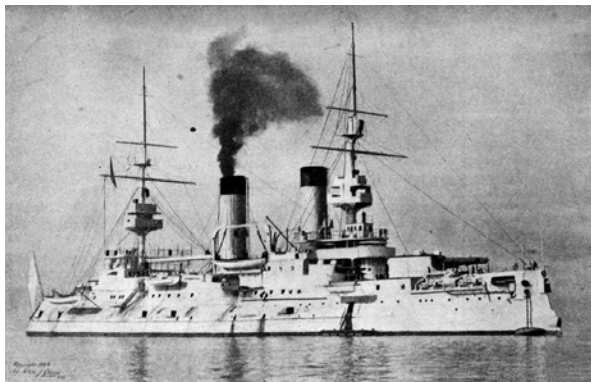
Statistics	
Displacement	13,516 tons (designed), 14,091–14,181 tons (actual)
Dimensions	375ft 4in. x 76ft 1in. x 27ft–29ft 2in.
Machinery	2 vertical triple-expansion engines (2 shafts), 20 Belleville boilers, 15,800–16,300ihp; coal-fired: 787 tons normal, 1,235 maximum
Max Speed	18kts
Armament: Guns	4 × 12in./40 (2x2), 12 × 6in./45 (6x2), 20 × 3in./50, 20 × 3-pounder, 6 × 1-pounder. Torpedo tubes: 4 × 15in. (two submerged)
Armor	Krupp steel. Belt: 9in., deck: 4in., barbettes: 4–8in., main turrets: 10in., secondary turrets: 6in., conning tower: 10in.
Crew	826–846
Shipyard	<i>Imperator Aleksander III, Knyaz Suvorov</i> – Baltic; <i>Borodino</i> – Admiralty, Russia, <i>Oryol</i> – Galeryi. Laid down: <i>Borodino</i> , <i>Aleksander</i> : May 23, 1900; <i>Suvorov</i> : September 8, 1901; <i>Oryol</i> : June 1, 1900. Launched: <i>Borodino</i> : September 8, 1901; <i>Aleksander</i> : August 3, 1901; <i>Suvorov</i> : September 25, 1901; <i>Oryol</i> : July 19, 1902. Entered Service: <i>Borodino</i> : August, 1904; <i>Aleksander</i> : August, 1904; <i>Suvorov</i> : July, 1904; <i>Oryol</i> : August, 1904



KEY

- | | |
|-----------------------------|-------------------------------------|
| 1. Jack staff | 19. Engines and engine room |
| 2. Anchors | 20. Main mast |
| 3. Bow torpedo tube | 21. 1-pounder (37mm) |
| 4. 3in. gun | 22. 3-pounder (47mm) |
| 5. Ship's boat | 23. After 12in. gun |
| 6. Torpedo net booms | 24. After 12in. gun turret |
| 7. Forward 12in. gun | 25. After 12in. magazine |
| 8. Forward 12in. gun turret | 26. After 12in. turret barbette |
| 9. 6in. turret | 27. After 12in. ammunition hoist |
| 10. 6in. barbette | 28. After 12in. shell handling room |
| 11. Bridge | 29. Wardroom |
| 12. Searchlight | 30. Captain's Quarters |
| 13. Foremast | 31. After Torpedo Room |
| 14. Funnel | 32. Propeller shaft |
| 15. Boilers | 33. Propeller |
| 16. Funnel uptakes | 34. Flagstaff |
| 17. Ship's boats | 35. Rudder |
| 18. Boat cranes | |





Tsesarevich was built in France for Russia to a design jointly developed by French naval architects and the Russian Admiralty. Its design was the basis for the Borodino-class battleships, Russia's final pre-dreadnought battleship design. (AC)

The main difference was that *Tsesarevich* retained the extreme tumblehome of the earlier French battleship design, *Suffren*. The tumblehome reduced the weight of the upper works, but at the cost of righting stability. The design was imitated in the Borodino class, built in Russia, albeit with less extreme tumblehome.

Although *Retvizan* was also built abroad, it was not a foreign design influencing future Russian ship building. While constructed in the United States, it was built to Russian specifications. Unlike *Tsesarevich*, *Retvizan* was not intended as a prototype. Rather,

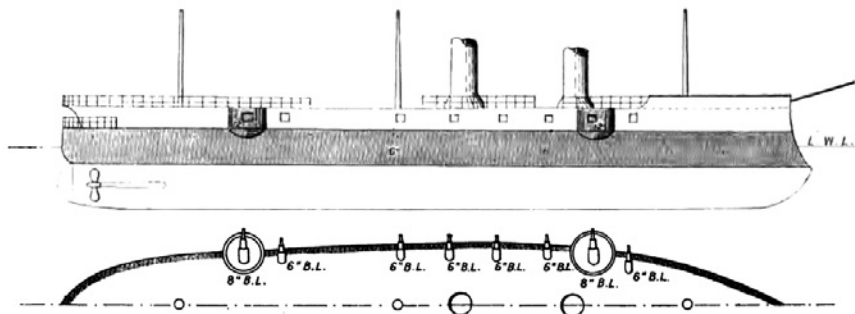
St Petersburg's shipyards were overcommitted. Russia needed more battleships, quickly, and Cramp and Sons were looking for business. It could be argued *Retvizan* influenced US battleship design. The Maine class, the first US Navy battleships started after *Retvizan*, were built by Cramp and resembled *Retvizan*.

Cruisers

Imperial Russian Navy cruisers, especially those designed and built between 1870 and 1895, were intended for long-range commerce raiding. Russia realized it could not build a navy outnumbering that of Great Britain or France, but believed its potential commerce raiding could deter France and especially Britain from starting a war with Russia. Two armored steel-hulled cruisers built in the 1880s saw service in the Russo-Japanese War: *Vladimir Monomakh* and *Dmitrii Donskoi*. Protected with substantial armor belts (4½ to 9 inches of compound armor), they could cruise under sail, and had substantial coal capacity (900 tons). Intended to operate independently on long voyages, they carried a large number of heavy quick-firing guns intended to overpower any enemy cruiser encountered before damage could be inflicted on the Russian cruiser.

A third cruiser built in the late 1880s, *Admiral Nakhimov*, shared some of their characteristics. One-third larger than the earlier cruisers, *Nakhimov* was initially intended as a second-class battleship. It was re-rated as an armored cruiser during construction, when 8-inch guns were substituted for the main battery's originally planned 9-inch guns. *Nakhimov* had triple-expansion engines and an impressive endurance owing to large coal bunkers, and also a sail rig that could be used for cruising.

Vladimir Monomakh was one of two armored cruisers built by Russia in the 1880s as commerce raiders. It had been awaiting modernization when the Russo-Japanese War started. This plan, from the 1886 edition of Brassey's *Naval Annual*, shows *Vladimir Monomakh* as it appeared shortly after entering service. (AC)



Russia's ultimate commerce-raiding cruiser was *Rurik*, designed in the late 1880s and laid down in 1890. Displacing over 12,000 tons, it was 25 percent larger than *Navarin*, a battleship started in 1890. *Rurik* was nearly 100 feet longer than *Navarin*, and one-third longer than previous Russian cruisers. It was heavily armed – a main battery of four 8-inch guns, 16 6-inch guns and 12 4.7-inch guns. Its armor belt was 10 inches of nickel-steel protection, reinforced by coal bunkers behind the armor belt.

Rurik was fast. On trials it reached 18.8 knots. It carried nearly 2,000 tons of coal and its steaming range was rumored to be 20,000nm. It was equipped with a full barque rig for greater range. These rumors led the Royal Navy to build *Powerful* and *Terrible*, cruisers even larger and more heavily armed than *Rurik*.

The threat posed by *Rurik* was less than imagined. *Rurik* would have been lucky to steam 10,000nm. The deck mounted guns were inadequately shielded. Following settlement of the Alabama Claims (prompted by the Confederate commerce raider *Alabama*), new neutrality laws made operating out of neutral ports and commerce raiding more difficult. Construction took so long *Rurik* was outdated when it finally entered service.

Rurik dominated Imperial Russian cruiser design in the 1890s. *Rossia* and *Gromboi* were updated *Ruriks*, eliminating the sailing rig, and substituting Belleville boilers for *Rurik*'s fire-tube boilers. They replaced *Rurik*'s nickel-steel armor with Harvey armor, permitting protection equivalent to *Rurik* over a much wider area for the same weight of metal. Intended as commerce raiders, both copied *Rurik*'s mix of four 8-inch, 16 6-inch, and numerous anti-torpedo boat guns (3-inch, 3-pounder, and 1-pounder).

All three had three engines: a centerline engine for cruising and larger port and starboard engines when speed was needed. Cruising on the center engine with the wing engines shut was supposed to yield better fuel economy. Since the outside propellers did not freewheel, however, their drag when steaming on the center engine erased any fuel savings.

Russia abandoned the commerce-raiding cruiser with its next armored cruisers – the Bayan class. Only *Bayan*, the class's lead ship, was completed prior to the Russo-Japanese War. *Bayan* was ordered during the navy build-up of 1896–1902. Since Russian shipyards were full, it was built in France.

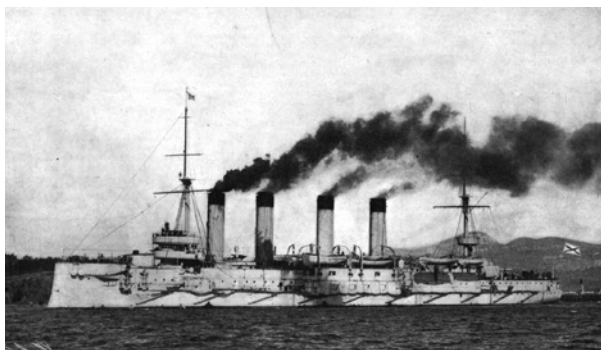
Bayan was a “squadron” armored cruiser, intended to scout for a Russian battle fleet. At 7,725 tons *Bayan* was significantly smaller than earlier cruisers. It had better protection and bigger engines than its larger cousins. The engines gave it better speed – 21 knots – two knots faster than *Rossia* and *Gromboi*.

The ship had half the 8-inch and 6-inch guns and half the range of the commerce-raiding cruisers. This suited its intended purpose of scouting for a battle fleet. Its main guns were mounted in armored turrets. After the Russo-Japanese War, Russia built three copies of this design.

Heavy armor protection and massive batteries were intended to keep anything fast enough to catch a commerce raider from damaging it badly enough to cut a cruise short. Cruisers scouting for a battle squadron stayed at

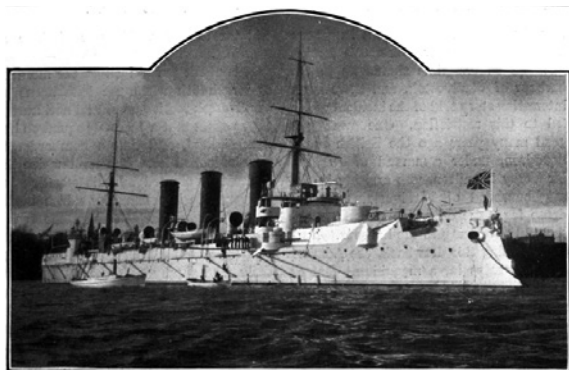


Rurik was rumored to have an endurance of 20,000 nautical miles. In reality its range under steam power was less than 10,000 nautical miles. Early in its career it carried a full rig of sails – the barque rig shown in this picture. It was the last Russian cruiser built with a sailing rig. (AC)



Bayan was the last armored cruiser built for Russia prior to the Russo-Japanese War. As with *Tsesarevich*, *Bayan* was designed in cooperation with France and built there. Three near-sisters of *Bayan* were built in Russia after the Russo-Japanese War. (AC)

In 1899 the Imperial Russian Navy began ordering protected cruisers as a means of quickly increasing cruiser numbers. It ordered protected cruisers from five different foreign yards, intending to choose the best design for future production domestically. *Bogatyr* was chosen as the large protected cruiser design. Russia eventually built four more cruisers to *Bogatyr's* design. (AC)



sea for shorter periods, and could fall back on its battleships when necessary. For scouting, protected cruisers were viewed as more cost-effective than armored cruisers.

Protected cruisers lacked the armor belt of armored cruisers. Instead they had an armored deck intended to protect the ship's machinery from exploding shells. If they took damage, the armored deck protected the machinery. The ship could escape, even with topside damage. Protected cruisers did not need to smother opponents with shells to prevent

return fire, so they carried smaller batteries, sufficient to screen battleships from torpedo threats.

Protected cruisers were cheaper and faster to build than armored cruisers, and carried smaller crews. After Russia decided to create a Pacific fleet, it ordered 11 protected cruisers. Seven were large cruisers between 6,000 and 8,000 tons, with a main battery of eight to 12 6-inch guns. Their speeds ranged between 19 and 23 knots. They could operate independently or with a fleet. These ships were used to show the flag in foreign ports during peacetime.

Five were smaller – between 3,000 and 3,500 tons, with speeds between 24 to 25 knots. They carried main batteries of four to eight 4.7-inch guns. They were scouts, intended to range in front of the fleet and use their high speed to race back to the battle line and report when they made contact with an enemy.

Russian Baltic Sea shipyards were filled by new construction, including the three domestically designed Pallada-class protected cruisers, so Russia ordered five cruisers from foreign yards. Rather than depend on one or two foreign yards, the Imperial Russian Navy ordered a single cruiser built at five different shipyards: *Askold* at Germaniawerft in Kiel, Germany, *Varyag* at Cramp in Philadelphia, Pennsylvania, *Bogatyr* at Vulkan in Stettin, Germany, *Novik* at Schichau Shipyard in Bremerhaven, Germany, and *Boyarin* at Burmeister & Wain in Copenhagen, Denmark. Each ship was built to a different design to specifications provided by the Russian Admiralty. Individual shipyards were encouraged to provide their own interpretation of the specifications.

The best designs, as revealed through operational experience, were repeated in Russian shipyards. Less satisfactory designs were dropped. Four more *Bogatyr*-class ships were eventually started, although only *Oleg* was completed in time to participate in the Russo-Japanese War. *Novik* was replicated in two *Izumrud*-class cruisers, both of which accompanied the Second Pacific Squadron to Tsushima in 1904.

A final Russian cruiser type of the Russo-Japanese War was the yacht-cruiser, a protected cruiser built not primarily for combat, but as a floating residence for royal family members. Two participated in the war: *Svetlana* and *Almaz*. Both were the same size and armed similarly to the smaller scout cruisers. They had spacious

accommodations for royal parties, compromising damage resistance. Both could serve as scout cruisers during wartime. *Svetlana* was built for Grand Duke Alexei Alexandrovich, General-Admiral of the Imperial Russian Navy from 1883. *Almaz* was to serve the same function for Yevgeni Alekseyev, Viceroy of the Russian Far East.

OPERATIONAL HISTORY

The Imperial Russian Navy that fought the Russo-Japanese War reflected nearly a quarter-century of development of Russian naval philosophy and ship design. In 1880 Russia was still absorbing the lessons of the 1877–78 Russo-Turkish War. The war led Russia to reevaluate its naval strategy and the purpose of its navy.

1880–1903

In the late 1870s the Russian Navy, commanded by Grand Duke Konstantin Nikolayevich of Russia, planned a three-part construction strategy: development of a Black Sea battle fleet, improvement of the battle fleet in the Baltic, and creation of new steel-hulled commerce-raiding armored cruisers. Most relevant to the Russo-Japanese War was the construction of armored cruisers *Vladimir Monomakh*, *Dmitrii Donskoi*, and *Admiral Nakhimov*.

They entered service in 1884, 1886, and 1888 respectively. Except for brief returns to the Baltic for repairs and refits, they spent most of their careers abroad. Occasionally assigned to the Mediterranean or show-the-flag cruises to North America and Western Europe, most of their service was in the Pacific, operating out of Vladivostok, while frequently visiting ports in Japan and China. The three were absent from the Pacific when the Russo-Japanese War started, undergoing refits. *Monomakh* and *Nakhimov* were still at St Petersburg when the war started, while *Donskoi* was in the Red Sea, headed towards Port Arthur.

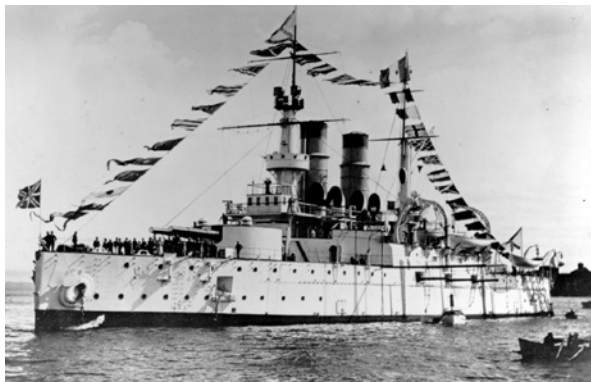
In 1882 Grand Duke Alexei Alexandrovich replaced Nikolayevich. Alexandrovich oversaw the Imperial Navy through the end of the Russo-Japanese War, as it grew from a minor regional naval power to the world's third-largest navy by 1903.

Russia then viewed Great Britain as its chief strategic opponent. Turkey in the Black Sea and Sweden and Germany were seen as local regional naval threats. (Japan, Korea, and China were felt to pose no threat to Russian naval power in the Pacific, with Russia's then-small Pacific squadron.) Russian naval doctrine envisioned developing fleets capable of defeating the regional powers in the Baltic and Black Seas if Britain or France did not intervene. Britain and France had intervened in Russian affairs (most notably in support of Turkey during the Crimean War of 1854–56), and Russia wanted a naval means to strike at them should they do so again.

Commerce-raiding cruisers, with battleships to protect Russia's naval ports, were adopted as

In 1880 Vladivostok was Russia's major naval port in the Pacific. Its importance was at its greatest in 1896, before Port Arthur became available, but it remained a significant part of Russia's Pacific presence even after 1897. (AC)





Sissoi Veliky spent much of the 1890s in the Far East, being withdrawn in late 1901 for a refit. It also spent time in the Mediterranean. This picture was made in Toulon, France, in 1897, when *Veliky* was in the Mediterranean during the Cretan Rebellion. (USNHHC)

the solution. This required increasing Russia's Pacific naval ports, as the Black and Baltic seas were too easily blockaded, and its Arctic Sea ports were frozen over much of the year. Vladivostok in Siberia, a naval port since the 1860s, significantly increased its importance in the late 1880s and 1890s.

Russia began building battleships for its Baltic and Black Sea fleets after Alexandrovich took charge. The first Baltic battleships, *Imperator Nikolai I* and *Gangut*, were laid down in 1880, soon followed by *Navarin* and *Sissoi Veliky*. Russia also laid down three

Poltava-class battleships. The early 1890s also saw construction of *Rurik*, which served as the prototype for Russian commerce-raiding cruisers.

Gangut sank soon after entering service, but the other three ships saw extensive service overseas. *Imperator Nikolai I* was sent to the Pacific in 1894 in response to the Sino-Japanese War of 1894–95.

The Sino-Japanese War served as a catalyst for a massive expansion of the Imperial Russian Navy. Japan's victory, which gave Japan the Liaodong Peninsula, made Japan a naval threat. Russian interests in the Far East now went beyond having an open-water base to use against Britain and France. Russia needed to neutralize the threat upstart Japan posed to Russia's Far Eastern growth. Naval expansion started in 1895. Construction started on the armored cruiser *Rossia*, the first Pallada-class protected cruiser, and the three Peresvet-class "cruiser-battleships."

Vladivostok froze over in the winter. In 1895, in combination with France and Germany, Russia forced Japan to return the Liaodong Peninsula to China in exchange for greater war indemnities. In 1897 Russia sent a fleet to Lushun (a port at the peninsula's tip). It leased the Peninsula from China in 1898, renaming Lushun Port Arthur. Between 1896 and 1900 Russia sent its three oldest battleships to the Pacific, reinforcing its cruisers already present.

C

THE LAST STAND OF THE *DMITRII DONSKOI*

Dmitrii Donskoi was an elderly armored cruiser launched in the 1880s. It was originally equipped with a full rig of sails. It was modernized several times, the last refit ending in early 1903. (By then the sails were gone.) It was steaming to Port Arthur when the war started, but returned to St Petersburg. Assigned to the Second Pacific Squadron when it left for Port Arthur, *Dmitrii Donskoi* was considered one of the squadron's most incompetently crewed vessels. Largely ignored during the daylight phase of the battle of Tsushima's first day, it came into its own during the nighttime part of the battle. It fought an epic contest with Japanese torpedo boats and cruisers, sinking two torpedo boats and damaging another torpedo boat and three Japanese cruisers.

Dmitrii Donskoi was first attacked by several waves of torpedo boats, but drove all of them off. Two torpedo boats, probably Number 74 and Number 75, were sunk by the armored cruiser. A third torpedo boat was seriously damaged. *Dmitrii Donskoi* next beat off an attack by four protected cruisers, damaging three of them. Finally, losing itself in the night, *Dmitrii Donskoi* crawled off to the north, heading to Vladivostok. Since the Japanese fleet's only losses were three torpedo boats, it appears the over-age, out-of-date *Donskoi* was the Russian fleet's most effective warship at Tsushima.

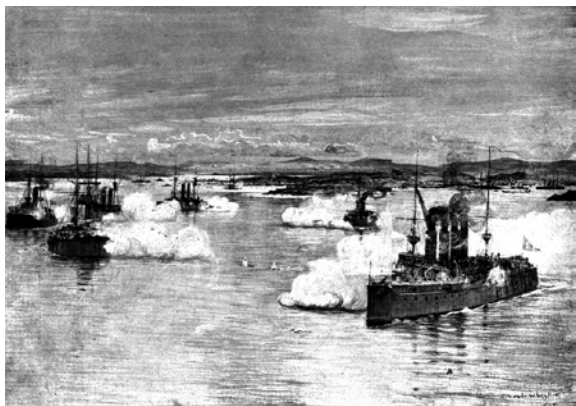
This plate shows the climax of *Donskoi*'s night. Under torpedo attack by Japan's 11th Torpedo Boat Division, *Donskoi* is dodging the enemy's fish while beating off the torpedo boats with all the guns it can bring to bear blazing. The results of its efforts can be dimly seen in the distance, as several of its shots score hits on the attacking torpedo boats.





Russia's decision to take Port Arthur put Russia and Imperial Japan on a collision course. The port had two major parts: the Outer Harbor (bottom) and the Inner Harbor (upper). The Inner Harbor was divided into the West Harbor and the East Harbor, where the dockyards were. (AC)

Japan trapped the protected cruiser *Varyag* at Chemulpo when the war began. This picture shows *Varyag* (right) with gunboat *Koriets* trailing behind steaming out to face six Japanese cruisers. *Varyag* and *Koriets* were forced back into Chemulpo and scuttled. (AC)



With Russia expanding Port Arthur, construction went into overdrive. Russia sought a fleet with eight battleships and eight cruisers in each major fleet (Baltic, Black, and Pacific) by 1905. Baltic Sea shipyards had at least five major warships on building ways between 1895 and 1902, with eight slips occupied in 1900 and seven in 1901. To permit faster build-up, Russia ordered warships built in foreign countries. Not until the eve of the Russo-Japanese War was Russia near to achieving that goal, which was delayed because of the long period (typically three years) between a ship's launch and its fitting-out.

As new battleships and cruisers entered service they were sent East, typically transiting the Suez Canal, convoying other, smaller warships being sent to the Pacific. By 1901 Russia had enough new construction operating out of Vladivostok and Port Arthur to rotate its oldest ships back to the Baltic for refit and modernization. (Port Arthur and Vladivostok lacked significant repair facilities for major refits or modernization.) Russian warships also often cruised in the Mediterranean enforcing Russian interests, often opposing Turkey. During the 1897 Cretan Rebellion three warships were assigned to the Mediterranean, supporting Greek separatists against the Turks.

By 1904 Russia's warships were spending more time at sea than they had a quarter-century earlier, its serving warships all postdated the end of the 1877–78 Russo-Turkish War, and Russia had credible naval forces in its Black Sea, Baltic Sea, and Pacific squadrons. Its ships had shown the flag, served Russian interests during foreign wars, including the Cretan Rebellion, Sino-Japanese War, and Boxer Rebellion, and supported Russia's Eastern expansion. Yet Russia had not fought a naval war over that last quarter-century. That was about to change.

The Russo-Japanese War

The Russo-Japanese War was the product of Russia's eastward expansion colliding with Japan's emergence as a world power. Japan was willing to accept Russia absorbing Manchuria, but became alarmed when Russia appeared to want Korea within its sphere of influence. Korea made a natural platform from which to invade Japan's Home Islands. Japan could accept a neutral Korea, but not a Korea dominated by a hostile power, including Russia.

In August 1903 Japan opened negotiations with Russia to set spheres of influence, offering to recognize Russia's control over Manchuria in exchange for Russia recognizing Korea as within Japan's sphere of influence. Russia still viewed the Japanese as a primitive people, not comprehending Japan's transformation into a modern industrial power. Russia ignored the Japanese. In January 1904, Japan broke off diplomatic relations, attacking Russia in February.

Russia then had seven battleships and 11 cruisers in the Far East. Four armored cruisers formed the Vladivostok Independent Cruiser Squadron. One cruiser, *Varyag*, was at Chemulpo (today's Inchon), representing Russian interests in Korea. The remaining battleships and cruisers were at Port Arthur. Additionally, battleship *Oslabya* and cruisers *Dmitrii Donskoi* and *Aurora* were traveling to Port Arthur as reinforcements.

Russia's Far East ships represented the Russian Empire's most modern operational warships. Five Borodino-class battleships were in St Petersburg completing pre-commissioning fitting out. So were Russia's three oldest ocean-going battleships and two of its oldest armored cruisers. The Japanese fleet had seven battleships (one an obsolete prize) and 16 modern cruisers.

After midnight on February 9, 1904, Japan launched a torpedo attack against Port Arthur, attacking before a formal declaration of war. The Russian fleet was lying at anchor in the Outer Harbor, unprepared for a peacetime attack. Most captains were aboard the flagship *Petropavlovsk* attending a birthday party for the wife of the fleet's commander, Admiral Stark.

Sixteen torpedoes were launched. Only three hit targets. Battleships *Tsesarevich* and *Retvizan* and protected cruiser *Pallada* each stopped one, but although all required repair, none sank. After sunrise, Japanese Admiral Togo brought the Japanese battleships and cruiser in to finish off the "crippled" Russian fleet. Port Arthur's shore batteries and all Russian warships returned fire. Togo reversed course and headed seaward, pursued by the still-mobile elements of the Russian squadron. Two more Russian battleships and two Russian cruisers were damaged in the exchange.

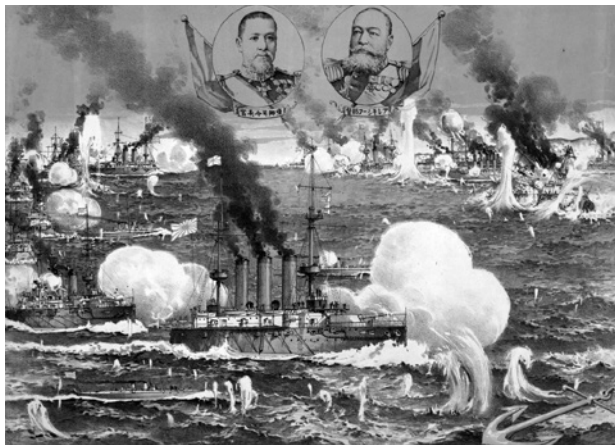
At Chemulpo, *Varyag*, with the gunboat *Korietz*, was trapped by Rear Admiral Uryu's 4th Cruiser Squadron as the war started. The Russian warships attempted to break out, but six Japanese cruisers forced them back into port. All of *Varyag*'s guns were disabled during the fight. The Russians scuttled the ships, blowing up *Korietz* and opening *Varyag*'s sea cocks.

To protect his fleet from further torpedo attack, Stark withdrew all ships to Port Arthur's Inner Harbor. He also sought to strengthen Russian defenses by laying minefields outside Port Arthur and the commercial port of Dalny, farther up the peninsula. On February 11, minelayer *Yenisei* struck one of its own mines, and sank. Cruiser *Boyarín*, sent to investigate, struck another *Yenisei*-laid mine and grounded. Refloated later that day, it drifted into a second friendly mine and sank, permanently.

The heavy units at Port Arthur remained inert through February and into early March. Admiral Stark confined efforts to improving Port Arthur's seaward defenses: laying minefields, increasing shore batteries, and conducting destroyer sweeps. Repairs started on the torpedoed warships. Japan unsuccessfully tried to trap the fleet in Port Arthur by sinking blockships in the channel on February 13, but *Retvizan* and shore batteries sank all five blockships before they reached the channel.



The Vladivostok Independent Cruiser Squadron proved a nuisance by conducting commerce-raiding sweeps in the Sea of Japan and the Pacific. This shows *Gromboi* sinking the Japanese troop transport *Sado Maru* on one sweep. (AC)



The battle of the Yellow Sea, fought August 10, 1904, saw the Japanese and Russian fleets batter each other with gunfire for over three hours. Despite numerous hits, neither side was able to sink even one enemy ship. (LOC)

In the Sea of Japan, the Vladivostok Cruiser Squadron, the cruisers *Rossia*, *Rurik*, *Gromboi*, and *Bogatyr*, swung into action. Breaking through the ice around Vladivostok after hostilities commenced, they launched the first of six commerce-raiding raids on February 10, sinking one Japanese transport. A second sortie, starting February 24, spent a week sweeping the Korean coast. Japanese attempts to intercept the squadron proved futile, and a Japanese bombardment of Vladivostok on March 6 was fruitless.

The Tsar relieved Stark, replacing him with the aggressive Stepan Makarov, Russia's most competent admiral. Makarov arrived

March 6. Three days later the Port Arthur fleet launched a destroyer sortie, backed up by heavy warships, the first of a series of aggressive patrols conducted by the Russians over the next six weeks. When Togo's battleships attempted to bombard Port Arthur later in March, Makarov sent his fleet after the Japanese, chasing them off. These skirmishes, while indecisive, improved Russian morale and performance and wore down the Japanese.

However, the Russian became too predictable. In the second week of April, the Japanese mined the routes taken by the Russians. On April 13, returning to Port Arthur after pursuing the Japanese battleships, the Russian squadron ran into the minefield. Makarov's flagship, *Petropavlovsk*, struck one mine, which detonated *Petropavlovsk's* forward magazine. The battleship exploded and sank, killing Makarov and 678 others. *Pobleda* struck a second mine, but reached Port Arthur unassisted.

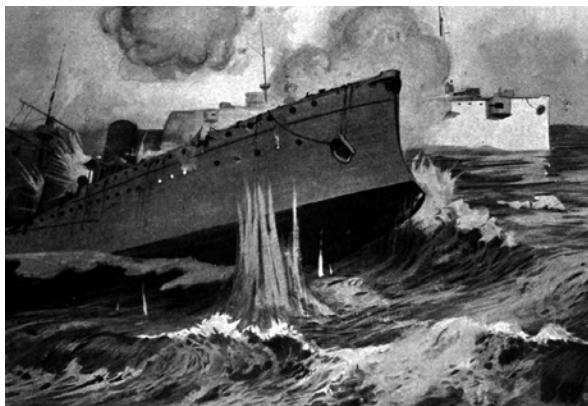
Fleet command devolved to Vice-Admiral Wilgelm Vitgeft. The Port Arthur squadron returned to its previous passivity, allowing Japan to take Dalny and land Japanese troops on the northern end of the Liaodong Peninsula, in May besieging Port Arthur.

The Vladivostok Squadron lost *Bogatyr* in March. It ripped its bottom on an uncharted rock in Amur Bay. Damaged beyond the capability of the Vladivostok shipyard to repair, it sat out the war in harbor. The remaining ships launched two new raids in April and June. The squadron ambushed a Japanese troop convoy in May, sinking two ships and several 11-inch siege howitzers bound for Port Arthur, and captured and sank several ships in a June sortie.

In July it conducted a raid into the Pacific through the Tsugaru Strait (between Honshu and Hokkaido). Sweeping down the Pacific Coast of Japan, the Russian cruisers captured three Japanese transports and returned to Vladivostok safely.

Despite prodding, Vitgeft kept his ships in Port Arthur's Inner Harbor during the spring and summer. Every previously-damaged Russian warship was repaired by mid-June. The Russians outnumbered the Japanese by six battleships to four. (Two Japanese battleships

The cruiser *Novik*, after reaching Tsingtao following the battle of the Yellow Sea, attempted to reach Vladivostok. It was caught and hunted down by Japanese cruisers, trapped while re-coaling. (AC)



had been sunk by mines in May, although the Japanese concealed the losses.) Vitgeft attempted a sortie on June 23. Togo closed to challenge the Russians, but Vitgeft mistook Japanese armored cruisers *Kasuga* and *Nisshin* for battleships. Believing himself outgunned, Vitgeft returned to port.

By August, Port Arthur was completely invested, with Japan controlling most of the Liaodong Peninsula. The Tsar ordered Vitgeft to take the fleet to Vladivostok, and directed the

Vladivostok squadron to assist Vitgeft's fleet. Vitgeft reluctantly obeyed. On August 10, the Russian fleet steamed out of Port Arthur.

The resulting battle of the Yellow Sea was a day-long affair with two protracted engagements. The first started at noon. The two battle fleets exchanged fire for three hours, while Togo maneuvered to cut off the Russian fleet from return to Port Arthur. By mid-afternoon Togo realized the Russians were not returning to Port Arthur. As the Russians steamed east, Togo maneuvered the faster Japanese fleet to block the Russians' escape.

The battle resumed at 0530hrs, late in the afternoon. Neither side's battleships took damage seriously enough to threaten a ship's seaworthiness. Gradually, both sides were becoming ineffective through topside damage and premature detonation when firing disabled guns. At 0615hrs, with darkness 30 minutes away, it appeared as if the Russians would escape.

Then two 12-inch shells struck the Russian flagship *Tsesarevich*. One killed Vitgeft and *Tsesarevich*'s helmsman, and a second struck *Tsesarevich*'s rudder, jamming it hard to port. The Russian battle line disintegrated in confusion as it followed the uncontrolled *Tsesarevich* through its turn. The Japanese, sensing victory, closed to finish off *Tsesarevich*. *Retvizan*'s captain took his ship into a solo charge against the Japanese battle line, which fell back. Darkness fell, with neither side having sunk a ship.

Most of the Russian fleet returned to Port Arthur. *Tsesarevich* and three destroyers headed for Germany's Chinese port, Tsingtao. *Askold* and a destroyer fled to Shanghai. *Diana* ran until it reached Saigon. All seven were interned until the war ended. *Novik* also reached Tsingtao, but, rather than accept internment, it steamed out at dawn, headed for Vladivostok.

Novik attempted to reach Vladivostok through the La Perouse Strait. High fuel consumption forced it to stop at Korsakov, a Russian port on the southern end of Sakhalin Island to coal. *Novik* was spotted entering the strait. Two Japanese protected cruisers were sent, arriving as *Novik* finished coaling. They forced *Novik* back into the harbor, where it was scuttled.

Having learned the Port Arthur fleet had sailed, the Vladivostok Squadron steamed out of Vladivostok on August 12. Unaware that the fleet had returned to Port Arthur, Karl Jessen, commanding the squadron, hoped to rendezvous with them in the Sea of Japan. Instead, Jessen encountered Vice Admiral Kamimura Hikonojo's four armored cruisers. In the battle of Ulsan, fought August 14, the Japanese sank *Novik* and badly damaged *Rossia*



The first "battle" fought by the Second Pacific Squadron was a nighttime attack on the Hull fishing fleet at Dogger Bank. Panic allowed the Russians to convince themselves the well-lit British trawlers were actually Japanese torpedo boats. (AC)



By December 1904 the Japanese had siege mortars in place which could reach the Russian ships huddled in Port Arthur's Inner Harbor. This photograph records an 11-inch shell hitting *Pallada*. The ship to the right is probably *Pobeda*, also sunk by Japanese howitzers. (LOC)

and *Gromboi*, putting the Vladivostok Squadron out of the war.

By June, Russia's Admiralty, realizing the war was going badly, made plans to reinforce the Pacific Squadron. Admiral Zinovy Rozhdestvensky was assigned the task of assembling the Second Pacific Squadron at St Petersburg and taking it to Port Arthur.

Four of the five Borodino-class battleships were rushed into commission for the squadron. Added to these were *Oslyabya*, *Dmitrii Donskoi*, and *Aurora*. Rozhdestvensky then included the least hopeless warships within the remaining Baltic Fleet: battleships *Sissoi Veliky* and *Navarin* and cruisers *Admiral Nakhimov*, *Oleg*, *Izumrud*, *Zhemchug*, *Svetlana*, and *Almaz*. Rozhdestvensky rounded out the

squadron with nine destroyers and a fleet train of seven auxiliaries.

Owing to Russian inefficiency, the squadron only departed Russia on October 15, well after it would have been useful. The voyage was the stuff of legend and nightmare.

Crossing the North Sea, the Second Pacific Squadron encountered Hull's fishing fleet at Dogger Bank, England. The panicked Russians, convinced the fishing boats were Japanese torpedo boats, opened fire on the fishermen. Russian fire hit other Russian warships, which returned fire. Before order was restored, one trawler was sunk, four were damaged and three fishermen dead. Five were wounded. The incident almost sparked war between Russia and Great Britain.

Meanwhile the Japanese tightened the noose on Port Arthur. By September Japanese siege lines were five miles from Port Arthur. As Rozhdestvensky inched down Africa's Atlantic coast with his most seaworthy vessels, the Japanese drew closer to Port Arthur. By December 1, its Inner Harbor was within range of Japanese siege guns. Between December 1 and December 11 the Japanese sank every warship in Port Arthur's inner harbor.

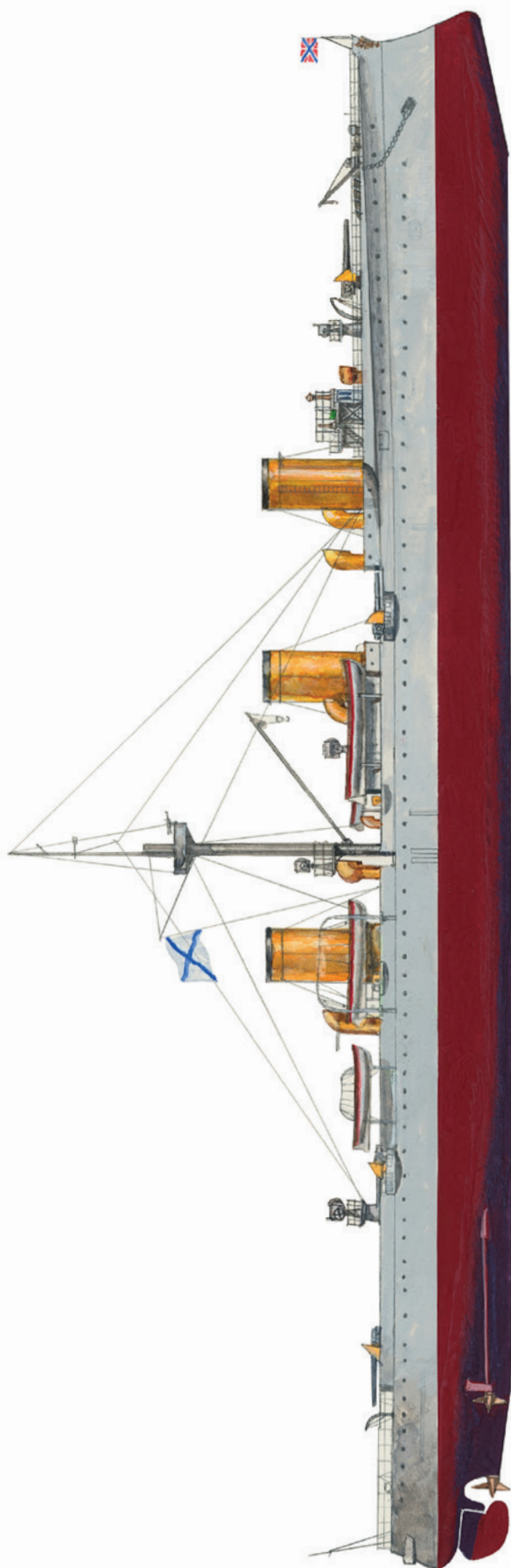
D

NOVIK

Novik is best known for its attempt to reach Vladivostok after the battle of the Yellow Sea. Arriving at German-held Tsingtao the night of the battle, the crew loaded the bunkers with coal during the remainder of the night and *Novik* steamed out of Tsingtao at dawn, well before the time limit permitted for warships to remain in a neutral port and before the Japanese could react to the cruiser's presence in the harbor.

Unfortunately, its boilers and engines were poorly maintained once the war started. As a result, *Novik* consumed coal at massive rates. Running low, *Novik* was forced to make a refueling stop for coal at then-Russian-held Sakhalin Island to reach Vladivostok. Since the ship's arrival was unexpected, coaling took a long time. *Novik* had just finished loading the last of the coal and was raising steam to leave harbor when two much larger Japanese cruisers reached *Novik's* refuge. *Novik* tried running, but was forced back to port, where its crew scuttled it to prevent its capture.

Japan captured the part of Sakhalin Island where *Novik* had been scuttled at the war's end. Impressed by the ship's performance, Japan salvaged *Novik*, commissioning it as *Suzuya*. The replacement machinery dropped its top speed significantly, however, and wireless made its function as a dispatch vessel obsolete. Deciding the small, slow cruiser was valueless, Japan scrapped it in 1913.



After Port Arthur fell, Rozhdestvensky could have either turned back to the Baltic or pressed on to Vladivostok. He chose to go forward. The result was a battle in the Sea of Japan immediately after exiting the Tsushima Straits. (AC)



Only *Sevastopol* was still afloat. Its captain placed it in the Outer Harbor intending to steam to Vladivostok. Out of range of Japanese siege guns, but open to attack by the Japanese Navy, *Sevastopol* was attacked almost nightly by Japanese torpedo boats throughout December. An early attack damaged a propeller, preventing the battleship's escape, but the Japanese never sank *Sevastopol*. Instead, *Sevastopol* was scuttled in deep water on January 2, 1905, the day Port Arthur surrendered. Rozhdestvensky had reached Madagascar two days earlier.

Rozhdestvensky split his fleet at Tangiers, sending the older ships through the Suez Canal, and reunited the two parts at Nosy Be in Madagascar. He stayed until March 16, when he learned reinforcements were being sent, made up of the ships he had rejected when forming the Second Pacific Squadron. The Third Pacific Squadron included *Imperator Nikolai I*, three coastal

E

THE END OF THE SEVASTOPOL

Sevastopol was the last of the three Poltava-class battleships built by Russia in the 1890s. Started in 1892 and launched in 1895, it entered service in 1900. Assigned to the Pacific Squadron in 1900, it was at Port Arthur when the Russo-Japanese War began and was trapped there after the battle of the Yellow Sea. The Japanese capture of Hill 201 on December 1, 1904 brought Port Arthur's Inner Harbor within range of the Japanese Army's German-made 11-inch howitzers. With their high angle trajectory, the 478-pound shells could penetrate the deck armor of any Russian warship. Starting December 5, the Japanese began systematically shelling the Russian fleet sheltered in the Inner Harbor. By December 9, all but one cruiser or battleship in Port Arthur had been sunk by the howitzers.

The exception was *Sevastopol*. Its captain, Nikolai Essen, took the battleship to the Eastern Harbor, out of range of the army guns. He intended to take the battleship out of Port Arthur and either rendezvous with Rozhdestvensky's Second Pacific Squadron, then at Madagascar, or head to Vladivostok.

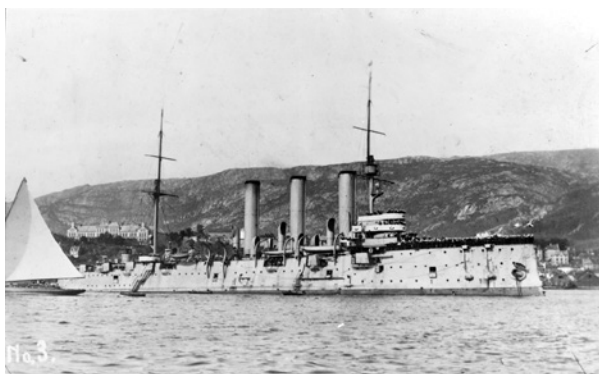
Although safe from the howitzers, the Eastern Harbor was vulnerable to attacks by the Japanese Navy, which was determined to destroy *Sevastopol*. The battleship thereafter was subject to incessant attack by Japanese warships. In late December, a torpedo hit and destroyed one of *Sevastopol*'s propellers, ending any chance of escape. The Japanese Navy continued its attacks through December, unable to sink the trapped battleship. Finally, on January 2, 1905, Russian land forces at Port Arthur surrendered. Hearing the news, Captain Essen took *Sevastopol* to the 30-fathom line and opened the seacocks on one side of the ship, to prevent its salvage by the Japanese. This plate captures *Sevastopol* as it begins its final journey – to the ocean's bottom 180 feet below.





During the daylight phase of Tsushima, *Oslyabya* and three of the four Borodino-class battleships (including *Borodino*, pictured here) were sunk by gunfire. (AC)

The protected cruiser *Aurora* survived the battle to be interned at Manila. Later, it fired the shot that started the Russian Revolution. Because of that, it continued as a training ship after most other Russian warships surviving the Russo-Japanese War were scrapped. This picture of *Aurora* was taken in Bergen, Norway in 1925. (USNHHC)



defense ships, the *Vladimir Monomakh* and an armed merchant cruiser. All were worthless. Rozhstvensky left Madagascar without them, not stopping until he reached Cam Ranh Bay in French Indochina. Inexplicably, he then waited there until joined by the Third Pacific Squadron.

Rozhstvensky's final leg of his trip ended just north of the Tsushima Strait, at the battle of Tsushima. Fought May 27–28, the battle was the most decisive naval victory of the 20th century. Japan captured or destroyed three-quarters of Russia's warships. The Japanese sank most of

the newer Russian battleships the first day, hunting down most of the rest – as well as most of the cruisers and destroyers – that night and the next day. May 28 also saw the surrender of the surviving Russian battle line – *Oryol*, *Imperator Nikolai I*, and two coast defense ships. (*Admiral Ushakov* was scuttled.) One Russian cruiser and two destroyers reached Vladivostok safely. Three cruisers were interned in Manila and one destroyer at Shanghai.

Afterwards

Of the 37 major units of the Imperial Russian Navy participating in the Russo-Japanese War, ten were still in Russian hands at war's end. Four cruisers were at Vladivostok: *Rossia*, *Gromboi*, *Bogatyr*, and *Almaz*. Only *Almaz* was operational. One battleship, *Tsesarevich*, was interned, disarmed at Tsingtao. Similarly interned and disarmed were *Askold* at Shanghai, *Diana* at Saigon, and *Oleg*, *Zhemchug*, and *Aurora* at Manila. *Oryol*, *Imperator Nikolai I*, *Admiral Senyavin*, and *General-Admiral Apriksin* had been captured by Japan at Tsushima. The rest had been sunk, many in shallow water.

After the war, the interned warships were released. Rearmed, they returned to Russian service. The three damaged cruisers in Vladivostok were repaired, requiring lengthy refits to repair battle damage and replace war-worn machinery. Only *Askold* and *Zhemchug* remained in the Pacific, the core of Russia's much-diminished Pacific Squadron. The rest returned to the Baltic.

Russia was faced with rebuilding its ocean-going navy. In one sense, for Russia the disaster was a good thing. The steam turbine and the dreadnought battleship produced another revolution in naval engineering, making all existing warships in 1904 obsolete. The fleet Russia had painstakingly built in the decade between 1895 and 1905 would have had to have been discarded and new ships built anyway. The lack of other ships and the slow pace of Russian ship construction kept these ten survivors in service through World War I, however.

A few of the ships experienced interesting careers. *Almaz*, the lucky cruiser that reached Vladivostok, was sent to the Black Sea. As it was viewed as primarily a yacht, the Turks permitted passage. During World War I it became a seaplane carrier. *Aurora*, transferred back to the Baltic, fired the shot starting the October Revolution leading to the Soviet Union's creation. *Zhemchug* was sunk by the

German cruiser *Emden* as World War I opened. *Oleg* was torpedoed and sunk during the Russian Revolution.

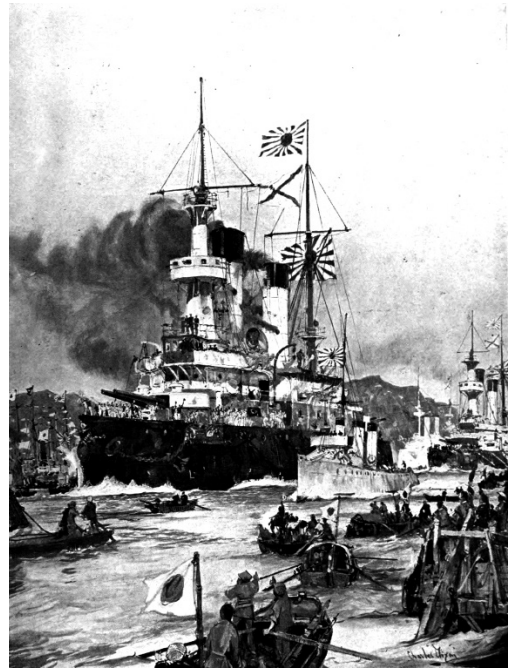
Most survivors served out World War I and the Russian Civil War to be scrapped in the 1920s. Owing to its role in the Revolution, *Aurora* was preserved as a training ship, surviving World War II in Leningrad (as St Petersburg was then named). Repaired between 1945 and 1947, it has since served as a museum ship.

The four ships captured by Japan at Tsushima were repaired, refitted, and incorporated into the Imperial Japanese Navy under new names. *Oryol* became *Iwami*, a second-class coastal defense ship. *Imperator Nikolai I* was recommissioned as *Iki*. *General-Admiral Apraksin*, became *Okinoshima*, and *Admiral Senyavin* became *Mishima*.

Eight of the sunken ships went on to new careers, some in both the Japanese and Russian navies. To Japan, the Russian warships scuttled or sunk in shallow waters seemed an opportunity to increase its fleet cheaply. Starting with *Varyag* in Chemulpo, Japan refloated and refitted the Russian warships in territory controlled by Japan. This included all the cruisers and battleships sunk in Port Arthur's Inner Harbor and the cruiser *Novik*, scuttled in part of Sakhalin Island that became Japanese at the war's end. Four battleships and two cruisers were raised from the mud of Port Arthur.

All eight were refitted, rearmed, re-engined, and taken into the Japanese Navy as warships. To a large extent, restoring these ships was a false economy. Contact with salt water had destroyed the original engines and boilers. After long rebuilds at shipyard facilities that would have been better used for new construction, Japan gained eight obsolescent warships, better suited to the last decade of the 19th century than the decade after their commissioning as Japanese warships. Their only real value was their prestige as war prizes.

Japan realized this. During World War I, Russia and Japan were allies rather than adversaries. As a gesture of solidarity, Japan returned *Tango* (formerly *Poltava*), *Sagami* (formerly *Peresvet*) and *Soya* (formerly *Varyag*) to Imperial Russia. *Tango* was renamed *Chesma*, but the other two resumed brief careers under their original names.

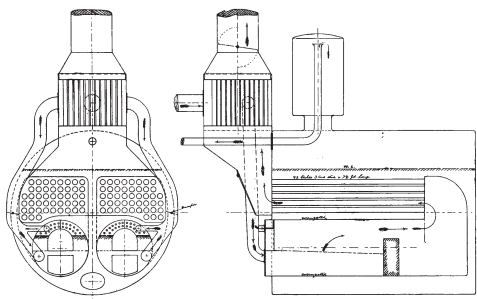


The Japanese captured four Russian battleships and coastal defense ships at Tsushima. The four became part of the Japanese Navy. This shows *Admiral Senyavin* and *General-Admiral Apraksin* entering Japan as prizes flying Japanese flags over Russian flags. (AC)

STATISTICS AND HISTORIES

All measurements are imperial: feet, tons, knots, and horsepower. The Imperial Russian Navy used the British system for ships. Length is length between parallels, unless noted otherwise. Draft is average draft. Displacement is long tons (2,240 pounds). All units are given as designed, with differences (and the reasons for the difference) given in parentheses following the value.

Armament and other data are given as completed unless otherwise noted. The number after the slash in the size of the gun (e.g. 6in./45) is the gun's caliber – the ratio of barrel length to bore. (A 45-caliber 6-inch gun has a barrel length of 270 inches, or 22 feet, 6 inches.) The disposition of the guns in turrets is shown in parenthesis following the size of the gun if the ship has



The cylindrical or Scotch boiler was the standard maritime fire-tube boiler. Russian cruisers up to *Rurik* and battleships up to the *Poltava* class used Scotch boilers. (AC)

multiple mounts. Example – 4 x12in. (2x2) means the 12-inch guns are in two two-gun turrets. This is omitted when guns are all single mounts. 3-pounders are 47mm guns. 1-pounders are 37mm guns.

Vessels were coal-fired. Standard and maximum fuel loads are given. As previously mentioned, Russia used the Julian calendar up to the Russian Revolution, but all dates for significant construction milestones are in Gregorian calendar because of space considerations.

There is a great deal of uncertainty in these statistics.

Imperial Russia was sloppy about measurement and even sloppier about maintaining records. Record-keeping was complicated by the loss of records during the Revolution and World War II. I have tried to use the best available information, but this information is often contradictory.

Service history is specific to each ship, providing detail absent in the Operational History section.

Battleships

Imperator Nikolai I

Named for Emperor Nikolai I, Tsar of Russia 1825–55. Visited New York City in 1893. In Pacific from 1894–96. In Mediterranean in 1897, supporting rebelling Cretans. Refitted in Kronstadt 1898–99. In Mediterranean 1901–04. Assigned as flagship of Third Pacific Squadron. At Tsushima (1905), surrendered May 28. Entered Japanese Navy and used as gunnery training ship *Iki* between 1905 and 1910. School ship 1910–15. Stricken from the list in 1915 and sunk as a target.

Displacement	8,440 tons (9,594 actual)
Dimensions	325ft 10in. x 66ft 11in. x 24ft 3in.
Machinery	2 triple-expansion engines (2 shafts), 12 cylindrical boilers, 7,842ihp; coal-fired, 847 tons normal
Max Speed	14.5kts
Armament	Guns: 2 x 12in./30 (2x1), 8 x 9in./35 (4x1) 8 x 6in./35 (8x1), 10 x 5-barrel revolving 3-pounder, 8 x 5-barrel revolving 1-pounder. Torpedo tubes: 6 x 15in.
Armor	Compound armor. Belt: 10–14in., deck: 2.5in., 9-inch gun casemate: 3in., 6-inch gun casemate: 2in., turrets: 10in., conning tower: 10in.
Crew	616
Shipyard	Galeryi. Laid down: August 4, 1886. Launched: June 1, 1889. Entered Service: July 1891

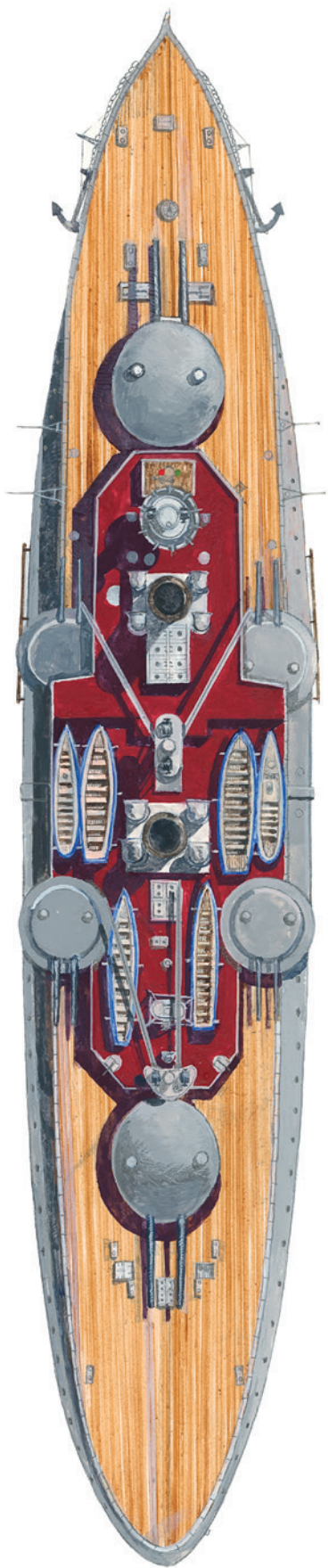
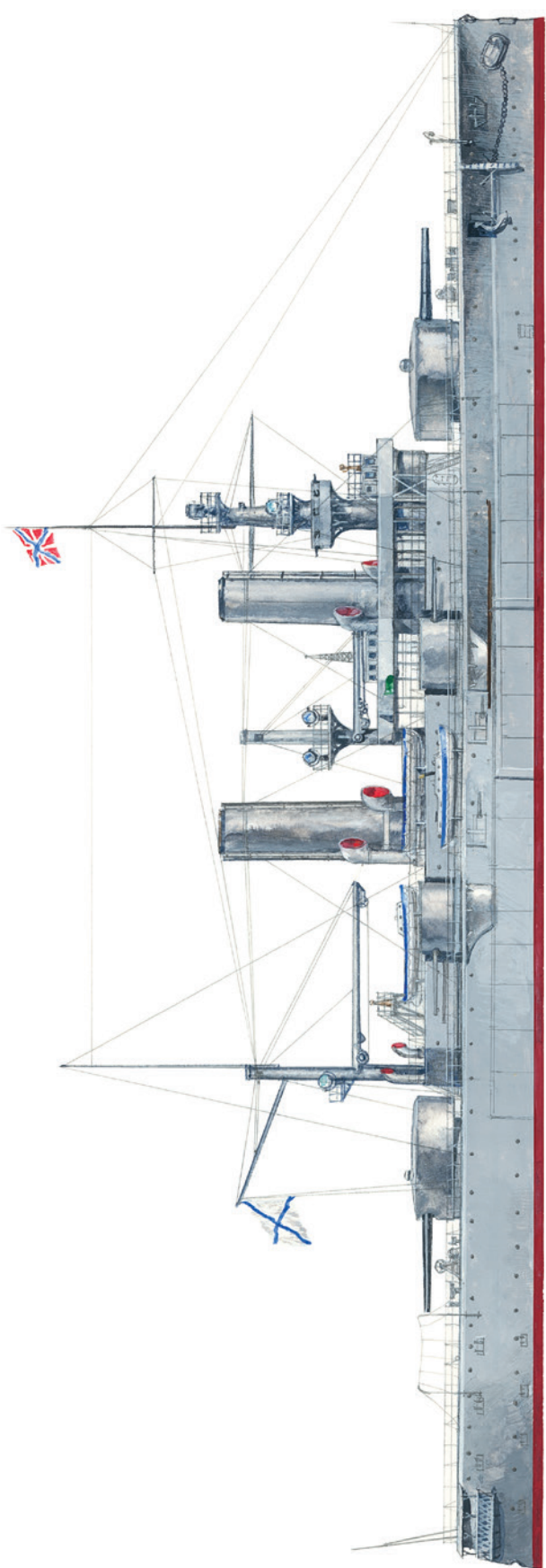
F

PETROPAVLOVSK

Petropavlovsk was one of three *Poltava*-class battleships started for the Imperial Russian Navy in the early 1890s. *Petropavlovsk* proved the favorite of the three, serving as the fleet flagship for Russia's Pacific Squadron.

The last class of Russian battleship intended to fight in the Baltic Sea, it marked a transition point in Russian naval architecture, with a combination of old and new. It was the first class to mount secondary armament in turrets, but retained fire-tube boilers. *Poltava* was the first battleship to have Krupp armor, while *Petropavlovsk* used nickel steel and *Sevastopol* had Harvey steel.

Admiral Stepan Makarov used it as his flagship when he took command at Port Arthur. On April 13, 1904, steaming back to port, *Petropavlovsk* struck a mine. The *Poltava*-class battleships had the forward 12-inch magazines, the torpedo magazine, and a magazine for 50 mines (intended to allow battleships security at unprotected anchorages) located together near the ship's bottom. The mine detonated one magazine, which caused the adjacent munitions to explode, sinking the ship almost instantaneously.



Navarin

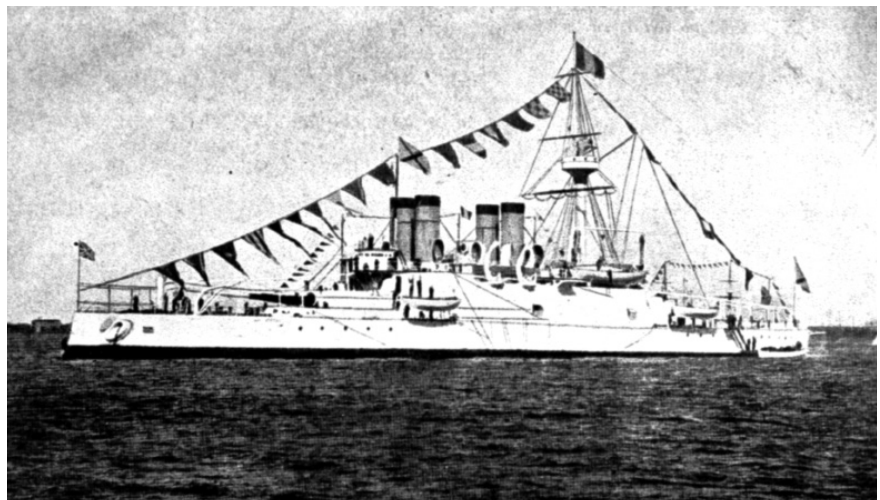
Named for the 1827 battle of Navarino. Assigned to Mediterranean 1896–98. Reassigned to Pacific 1898–1902. Under refit in Kronstadt 1902–04. Assigned to Second Pacific Squadron 1904. Mined and sunk at Tsushima.

Displacement	10,206 tons
Dimensions	338ft x 67ft x 27ft 7in.
Machinery	2 triple-expansion engines (2 shafts), 12 cylindrical boilers, 9,000ihp; coal-fired: 700 tons normal, 1,200 tons maximum
Max Speed	14.85kts
Armament	Guns: 4 × 12in./35 (2x2), 8 × 6in./35, 14 × 3-pounder, 12 × 1-pounder. Torpedo tubes: 6 × 15in.
Armor	Compound armor. Belt: 12–16in., deck: 2–3in., casemate: 5in., turrets (nickel steel): 12in., conning tower: 10in.
Crew	441
Shipyard	Admiralty. Laid down: May 31, 1890. Launched: October 20, 1891. Entered Service: June 1895

Sissoi Veliky

Named for Saint Sisoës the Great. Sent to Mediterranean during Cretan Rebellion. Ordered to Far East in 1898, remained through 1901. Refitted in Libau 1901–04. Assigned to Second Pacific Squadron. Torpedoed and sunk at Tsushima.

Displacement	8,800 tons (10,400 actual)
Dimensions	333ft 6in. x 68ft x 25ft 6in
Machinery	2 triple-expansion engines (2 shafts), 12 cylindrical boilers, 8500ihp; coal-fired: 550 tons normal, 1,000 maximum
Max Speed	15.65kts
Armament	Guns: 4 × 12in./40 (2x2), 6 × 6in./45, 12 × 3-pounder, 10 × 1-pounder. Torpedo tubes: 6 × 15in.
Armor	Nickel steel. Belt: 12–16in., deck: 2½–3in., turrets: 10–12in., casemate: 5in., conning tower: 9in.
Crew	686
Shipyard	Admiralty. Laid down: May 19, 1892. Launched: June 1, 1894. Entered Service: August 30, 1896



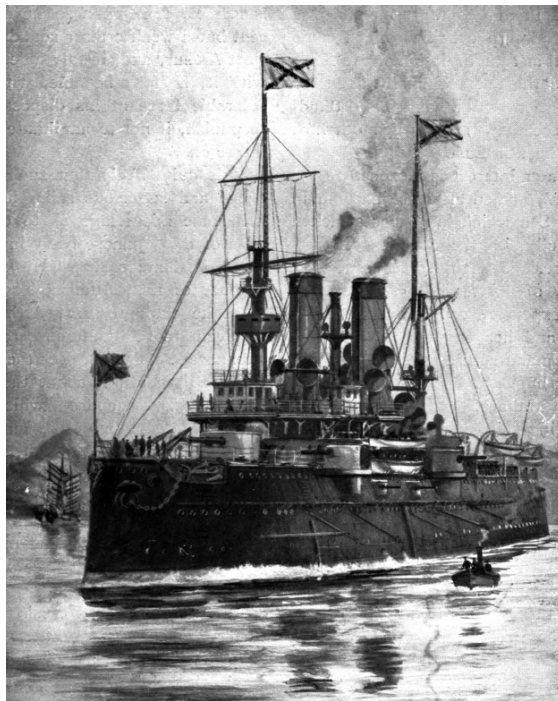
The two pairs of side-by-side funnels gave *Navarin* an unmistakable appearance. Because of them, its nickname was “the Factory.” (AC)

Poltava class

Poltava: Named for the 1709 Great Northern War battle of Poltava. Pacific Squadron 1899–1904. At battle of Yellow Sea, August 10. Sunk by Japanese 11-inch howitzers in Port Arthur, December 1904. Raised, repaired, and recommissioned by Japan 1905–09 as coast defense ship *Tango*. Participated in siege of Tsingtao and in the Mediterranean during World War I. Returned to Russia in 1916, renamed *Chesma*. Refitted in Great Britain and sent to Murmansk in 1917. Declared for Soviets, seized by British in 1918. Left in Murmansk when abandoned by Britain in 1920. Scrapped 1924.

Petropavlovsk: Named for the Crimean War battle of Petropavlovsk-Kamchatka. Pacific Squadron 1899–1904 as flagship. Engaged Japanese fleet February 9, 1904. Mined and sunk May 7, 1904.

Sevastopol: Named for Sevastopol, a Crimean Peninsula Russian naval port. Pacific Squadron 1900–04. At the battle of the Yellow Sea. Moved to Port Arthur's Outer Harbor to take it out of range of Japanese siege guns attacking Inner Harbor. Unsuccessfully attacked by Japanese torpedo craft. Scuttled in deep water, January 2, 1905 to prevent capture or salvage by Japan.



Petropavlovsk served as the flagship of the Pacific Squadron from its arrival in 1899 until it was sunk in April 1904. (AC)

Poltava class	
Displacement	10,960 tons (11,354–11,842 actual)
Dimensions	356ft x 70ft x 28ft 3in.
Machinery	2 triple-expansion engines (2 shafts), 16 Scotch (cylindrical) boilers, 10,600ihp (designed) 9,368–11,255 (actual); coal-fired: 700 tons normal, 1,050 full load
Max Speed	16kts (15.3–16.4 trials)
Armament	Guns: 4 x 12in./40 (4x2), 12 x 6in./45 (4x2, 4x1), 12 x 3-pounder, 28 x 1-pounder. Torpedo tubes: 4 x 15in., 2 x 18 in. (submerged)
Armor	Nickel steel (<i>Petropavlovsk</i>), Harvey steel (<i>Sevastopol</i>), Krupp steel (<i>Poltava</i>). Belt: 12–16in., deck: 2–3in., main turrets: 10in., barbettes: 10in., secondary turrets: 6in., conning tower: 9in.
Crew	650 (750 as flagship)
Shipyard	<i>Poltava</i> – Admiralty, <i>Petropavlovsk</i> , <i>Sevastopol</i> – Galeryi. Laid down: <i>Poltava</i> : May 19, 1892; <i>Petropavlovsk</i> : May 19, 1892; <i>Sevastopol</i> : May 19, 1892. Launched: <i>Poltava</i> : November 6, 1894; <i>Petropavlovsk</i> : November 9, 1894; <i>Sevastopol</i> : June 1, 1895. Entered Service: <i>Poltava</i> , <i>Petropavlovsk</i> : 1899; <i>Sevastopol</i> : 1900

Peresvet class

Peresvet: Named for 14th-century warrior-monk Alexander Peresvet. Pacific Squadron 1901–04. At Port Arthur and battle of the Yellow Sea. Scuttled in Port Arthur's Inner Harbor after being hit by Japanese 11-inch siege guns. Raised, repaired, and recommissioned by Japan 1905–08 as coast defense ship *Sagami*; served in Japanese Navy 1908–16. Sold back to Russia in 1916. Struck mine and sank off Port Said, January 4, 1917.

Oslyabya: Named for a 14th-century warrior-monk. En route to Port Arthur when the war started. Returned to Baltic. Assigned to Second Pacific Squadron. Sunk at Tsushima.

Pobeda: Russian for “Victory.” Pacific Squadron 1903–04. Fought at Port Arthur. Struck mine on May 7, but survived and was repaired. At the battle of the Yellow Sea. Sunk at Port Arthur in December by Japanese siege howitzers. Raised, repaired, and recommissioned by Japan 1905–08 as coast defense ship *Suwo*. Blockaded Tsingtao in 1914. Gunnery training ship 1917–18. Capsized in 1922 while armor was being removed. Broken up 1923.

Peresvet class	
Displacement	12,674 tons (13,320–14,408 tons as built)
Dimensions	401ft 3in. x 71ft 9in. x 26ft 3in.
Machinery	3 vertical triple-expansion engines (3 shafts), 30 Belleville boilers, 14,500ihp; coal-fired: 1,060 tons normal, 2,030 maximum
Max Speed	18kts (18.3–18.5 trials)
Armament	Guns: 4 × 10in./45 (2x2), 11 × 6in./45, 20 × 3in./50, 20 × 3-pounder, 8 × 1-pounder. Torpedo tubes: 5 × 15in. (two submerged)
Armor	Harvey steel (<i>Peresvet</i> , <i>Oslyabya</i>), Krupp steel (<i>Pobeda</i>). Belt: 4–9in., deck: 2–3in., casemates: 5in., turrets: 9in., conning tower: 6in.
Crew	771
Shipyard	<i>Peresvet</i> , <i>Pobeda</i> – Baltic; <i>Oslyabya</i> – Admiralty. Laid down: <i>Peresvet</i> , <i>Oslyabya</i> : November 21, 1895; <i>Pobeda</i> : February 21, 1899. Launched: <i>Peresvet</i> : May 19, 1898; <i>Oslyabya</i> : November 8, 1898; <i>Pobeda</i> : May 10, 1900. Entered Service: <i>Peresvet</i> : 1901, <i>Oslyabya</i> : 1903, <i>Pobeda</i> : 1902

Retvizan

Named for Swedish warship *Rättvisa*, “Justice,” captured in 1790. Pacific Squadron 1902–04. Torpedoed during opening day surprise attack. Repaired; at the battle of the Yellow Sea. Sunk at Port Arthur in December by Japanese siege howitzers. Raised, repaired, and recommissioned by Japan 1905–08 as coast defense ship *Hizen*. Participated in World War I and Russian Civil War in the Pacific. Stricken 1923. Sunk as gunnery target 1924.

G

CHARGE OF THE RETVIZAN AT THE BATTLE OF THE YELLOW SEA

On August 10, 1904, the First Pacific Squadron attempted a breakout to Vladivostok. Late that afternoon it looked as if the Russian fleet would successfully escape. Thirty minutes before sunset, however, the flagship *Tsesarevich* was hit by two 12in. shells. One hit the bridge, killing the admiral commanding the fleet, the command staff and the helmsman. The second hit the rudder, putting the ship in a tight circle. Following the uncommanded flagship caused the Russian formation to disintegrate. As most of the Russian fleet milled about in confusion, the Japanese, seeing this confusion, closed on *Tsesarevich* to sink it.

The captain of the battleship *Retvizan*, Eduard Schensnovich, decided to protect *Tsesarevich*. He turned *Retvizan* towards the Japanese battle line, conducting a lone battleship charge against the entire Japanese fleet. A hurricane of shells rained down as *Retvizan* became the target of four Japanese battleships and two large armored cruisers. The shells fell so thick Japanese ships could not determine which shell splashes were theirs and which were due to other ships. This prevented these ships from correcting errors. They also could not tell whether their shells were landing over *Retvizan* or short of it.

The charge succeeded in drawing Japanese attention away from *Tsesarevich* and caused the Japanese to move their battle line away from the Russian fleet. *Tsesarevich* reached the safety of Tsingtao after night fell. Although Captain Schensnovich was wounded and *Retvizan* hit 18 times, the ship escaped serious damage. As darkness fell, *Retvizan* rejoined the Russian battle line, now under command of Admiral Pavel Ukhomsky, and was able to steam back to Port Arthur that evening.

This plate shows *Retvizan* as it charges into the Japanese surrounded by shell splashes, with the Russian battle line in the background.



Displacement	12,746 tons (12,900 tons actual).
Dimensions	376ft x 72ft 2in. x 25ft
Machinery	2 vertical triple-expansion engines (2 shafts), 24 Niclausse water-tube boilers, 17,112shp; coal-fired: 1,616 tons normal, 2,000 maximum
Max Speed	18kts
Armament	Guns: 4 × 12in./40 (2x2), 12 × 6in./40, 20 × 3in./50, 24 × 3-pounder, 6 × 1-pounder. Torpedo tubes: 6 × 15in. (2 submerged)
Armor	Krupp armor. Belt: 5–9in., deck: 2–3in., casemate: 5in., main turrets: 9in., conning tower: 10in.
Crew	750
Shipyard	Cramp. Laid down: 29 July 1899. Launched: 23 October 1900. Entered Service: 23 March 1902

Tsesarevich

Named for the heir to the Imperial Russian throne. Arrived at Port Arthur in November 1903. Torpedoed and damaged during opening day surprise attack. Repaired. At the battle of the Yellow Sea as Admiral Vitgeft's flagship. Escaped to Tsingtao after battle; interned. Reassigned to Baltic after war, conducting annual Mediterranean winter cruises between 1906 and 1913. In Baltic during World War I. Renamed *Grazhdanin* (Citizen) after October Revolution. Damaged at battle of Moonsund October 1917, and laid up afterwards. Scrapped 1925.

Displacement	12,915 tons (13,110 actual)
Dimensions	372ft x 76ft 1in. x 26ft
Machinery	2 vertical triple-expansion engines (2 shafts), 20 Belleville boilers, 16,300ihp (16,500ihp at speed trials); coal-fired: 800 tons normal, 1,350 maximum
Max Speed	18kts (18.77 trials)
Armament	Guns: 4 × 12in./40 (2x2), 12 × 6in./45 (6x2), 20 × 3in./50, 20 × 3-pounder, 8 × 1-pounder. Torpedo tubes: 6 × 15in. (two submerged)
Armor	Krupp armor. Belt: 6.7–9.84in., deck: 2in., barbettes: 9.84in., main turrets: 9.84in., secondary turrets: 5.9in., conning tower: 10in. forward, 9in. aft
Crew	732
Shipyard	La Seyne. Laid down: July 8, 1899. Launched: February 23, 1901. Entered Service: August 31, 1903

Pobeda was one of three "cruiser-battleships" built for the Imperial Russian Navy. Sunk in Port Arthur, it was later refloated by Japan and repaired, serving in the Japanese Navy for 14 years. (AC)

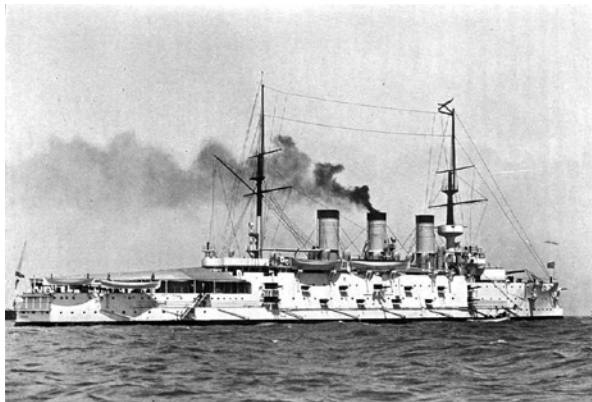
Borodino class

***Borodino*:** Named for the 1812 battle of Borodino. Assigned to Second Pacific Squadron in 1904. Sunk at Tsushima.

***Imperator Aleksander III*:** Named for Aleksander III, Tsar of Russia 1881–94. Assigned to Second Pacific Squadron in 1904. Sunk at Tsushima.

***Knyaz Suvorov*:** Named for Knyaz (Prince) Alexander Vasilyevich Suvorov. Assigned to Second Pacific Squadron in 1904. Sunk at Tsushima.

***Oryol*:** Eagle in Russian. Assigned to Second Pacific Squadron in 1904. Surrendered at Tsushima. Refitted by Japan. Commissioned in Japanese Navy as *Iwami* in 1907. Rated as a coastal defense ship in 1912. Served in Pacific during World War I and Russian Revolution,



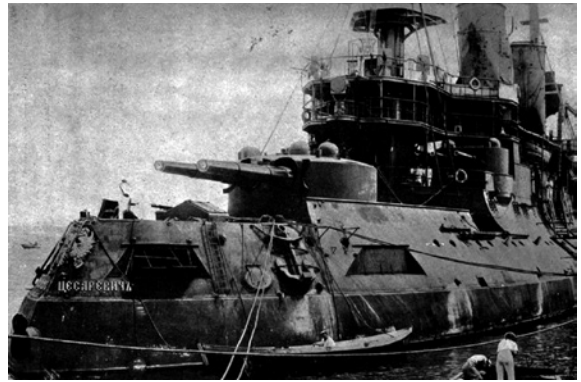
participating in siege of Tsingtao and Japanese Russian Intervention. Training ship in 1921. Stricken 1922. Sunk as a target or scrapped in 1924.

Coastal Defense Ships

Admiral Ushakov class

Admiral Ushakov: Named for Fyodor Ushakov, a late 18th-century Russian admiral. Served in Baltic 1895–1904. Assigned to Third Pacific Squadron. Sunk at Tsushima.

Admiral Senyavin: Named for Dmitry Senyavin, Russian fleet commander at Navarino. Served in Baltic 1896–1904. Assigned to Third Pacific Squadron. Surrendered at Tsushima. Commissioned in Imperial Japanese Navy as coastal defense ship *Mishima*. At Siege of Tsingtao and Japanese Russian Intervention during World War I and Russian Civil War. Rerated submarine tender 1921. Struck from Japanese Navy in 1935. Sunk as target September 1936.



Abandoned by the rest of the Pacific Squadron after the battle of the Yellow Sea, *Tsesarevich* steamed to Tsingtao, where it was interned until the war ended. This picture shows *Tsesarevich* at Tsingtao shortly after its arrival. It was the only Russian battleship in the Pacific to avoid capture or destruction. (AC)

Admiral Ushakov class	
Displacement	4,126 tons
Dimensions	265ft x 52ft 6in. x 17ft
Machinery	2 vertical triple-expansion engines (2 shafts), 8 (<i>Ushakov</i> 4) cylindrical boilers, 5,750ihp; coal-fired: 450 tons
Max Speed	16kts
Armament	Guns: 4 × 10in./40 (2x2), 4 × 4.7in./40, 6 × 3-pounder, 10 × 1-pounder. Torpedo tubes: 4 × 15in.
Aarmor	Compound armor. Belt: 10in., deck: 3in., main turrets: 8in., conning tower: 8in.
Crew	400
Shipyard	<i>Admiral Ushakov</i> – Admiralty; <i>Admiral Senyavin</i> – Baltic. Laid down: <i>Ushakov</i> : January 13, 1892; <i>Senyavin</i> : August, 1892. Launched: <i>Ushakov</i> : November 12, 1893; <i>Senyavin</i> : September 2, 1894. Entered Service: <i>Ushakov</i> : 1895; <i>Senyavin</i> : 1896



The battleship *Oryol* in the Baltic shortly after it was commissioned. The only Borodino-class battleship to survive Tsushima, it was captured along with three other Russian warships. (AC)

General-Admiral Apraksin

Named for Fyodor Apraksin, one of Russia's first admirals. Baltic Fleet 1899 through 1904. Ran aground in 1899, but salvaged. Assigned to Third Pacific Squadron. Surrendered at Tsushima. Commissioned as Imperial Japanese Navy coastal defense ship *Okinoshima*. At Tsingtao and Japanese Russian Intervention during World War I and Russian Civil War. Rerated a submarine tender in 1921. Struck from Japanese Navy 1922. Sold 1924; transformed into a museum ship. Finally scrapped in 1939.

Displacement	4,165 tons.
Dimensions	264ft 6in. x 52ft x 17ft
Machinery	2 vertical triple-expansion engines (2 shafts), 4 cylindrical boilers, 6,000ihp; coal-fired: 215 tons normal, 313 maximum
Max Speed	15kts
Armament	Guns: 3 × 10in./40 (1x2, 1x1), 4 × 4.7in./40, 10 × 3-pounder, 12 × 1-pounder. Torpedo tubes; 4 × 15in.
Armor	Compound armor. Belt: 10in., deck: 3in., main turrets: 8in., conning tower: 8in.
Crew	318
Shipyard	Admiralty. Laid down: November 6, 1894. Launched: May 25, 1896. Entered Service: 1899

Cruisers

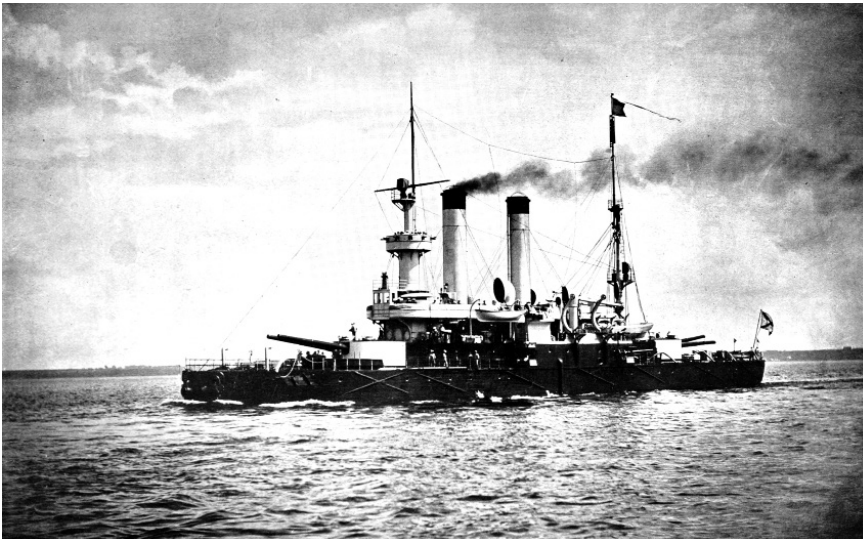
Vladimir Monomakh

Named for Vladimir II, a 12th-century Kievan Grand Prince. Far East 1884–87. Refitted at Kronstadt. Mediterranean 1889, Far East 1890–1892. After major refit in Kronstadt, returned briefly to Mediterranean in 1894. Sent to Far East during Sino-Japanese War. Major refit at Kronstadt, 1896. Far East service 1897–1902. Refitted 1903–04. Assigned to Third Pacific Squadron. Sunk at Tsushima.

Displacement	6,061 tons
Dimensions	296ft 6in. x 52ft x 24ft
Machinery	2 compound engines (2 shafts), 12 Scotch (cylindrical) boilers, 7,000ihp; coal-fired: 9,400 tons
Max Speed	15.2kts
Armament	Guns: 5 × 6in./45 (5x1), 6 × 4.7in., 6 × 3-pounder, 10 × 1-pounder. Torpedo tubes: 3 × 15in. (after 1896 refit)
Armor	Compound armor. Belt: 4.75-9in., deck: 3in., casemate: 3-4in.
Crew	550
Shipyard	Baltic. Laid down: February 22, 1881. Launched: October 22, 1882. Entered Service: 1884

Dmitrii Donskoi

Named for Dmitry Donskoy, a 14th-century Prince of Moscow and Grand Prince of Vladimir. Mediterranean service 1885–87. Far East 1887–89. Refitted in Kronstadt 1890–91. Far East 1891–93. Visited US in 1893. Refitted at Kronstadt 1893–95, when rearmed. Far East 1896–1901. Refitted at Kronstadt 1902–03. Heading to Port Arthur when war started, returned to Baltic. Assigned to Second Pacific Squadron. Sunk at Tsushima.



The coast defense ship *Admiral Senyavin* in the Baltic. Due to their low freeboard *Senyavin*, *Ushakov* and *Apraksin* were called the “flatirons” by the Russian Navy’s sailors. (AC)

Displacement	5,882 tons
Dimensions	296ft 5in. x 52ft x 24ft 9in.
Machinery	2 compound engines (2 shafts), 6 Scotch (cylindrical) boilers, 7,000ihp; coal-fired: 900 tons
Max Speed	16.5kts
Armament	Guns: 6 × 6in./35, 10 × 4.7in., 6 × 3-pounder, 10 × 1-pounder. Torpedo tubes: 4 × 15in.
Armor	Compound armor. Belt: 4.5–9in., deck: ½in., barbettes: 3–4in.
Crew	510
Shipyard	Admiralty. Laid down: May 21, 1881. Launched: August 30, 1883. Entered Service: 1886

Admiral Nakhimov

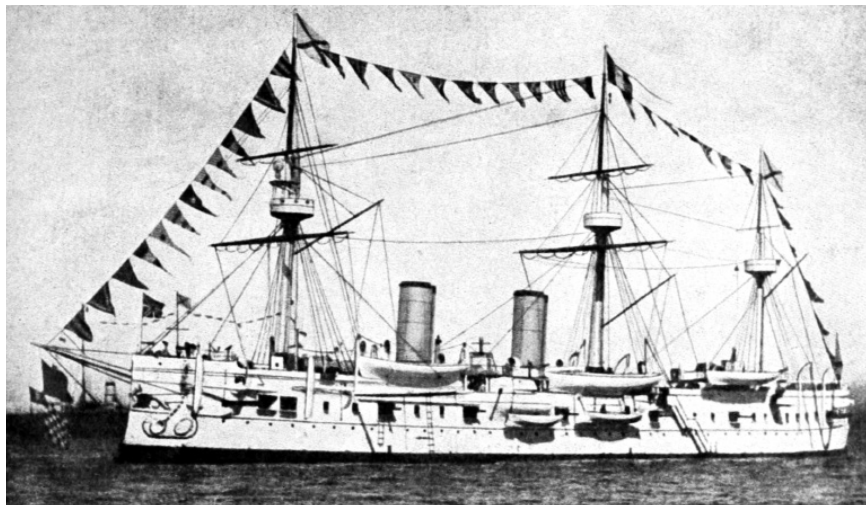
Named for Pavel Nakhimov, Sevastopol commander during Crimean War siege. Flagship Vladivostok Squadron 1888–1891. Refitted Baltic, 1891. Visited France and US in 1893. Far East 1894–98. Modernized in Baltic 1898–99. Far East 1899–1903. Awaiting refit at Kronstadt 1903–04. Assigned to Second Pacific Squadron. Sunk at Tsushima.

Displacement	8,524 tons
Dimensions	333ft x 61ft x 25ft
Machinery	2 vertical triple-expansion engines (2 shafts), 12 cylindrical boilers, 9,000ihp; coal-fired: 1,200 tons
Max Speed	17kts
Armament	Guns: 8 × 8in./35 (4x2), 10 × 6in./35, 4 × 4.1in./40, 15 × 3-pounder. Torpedo tubes: 3 × 15in.
Armor	Compound armor. Belt: 10in., deck: 2–3in, turrets: 2–2½in., barbettes: 8in., conning tower: 6in.
Crew	517
Shipyard	Baltic. Laid down: July 1884. Launched: October 1885. Entered Service: September 1888

Rurik

Named for the Kievan-Rus dynasty’s founder, King Rurik. Represented Russia at 1895 Kiel Canal opening. Far East 1895–1904. Refitted

Armored cruiser *Dimitrii Donskoi* late in its career, possibly after its 1903 refit. The lofty sailing rig it once had has been trimmed. (AC)



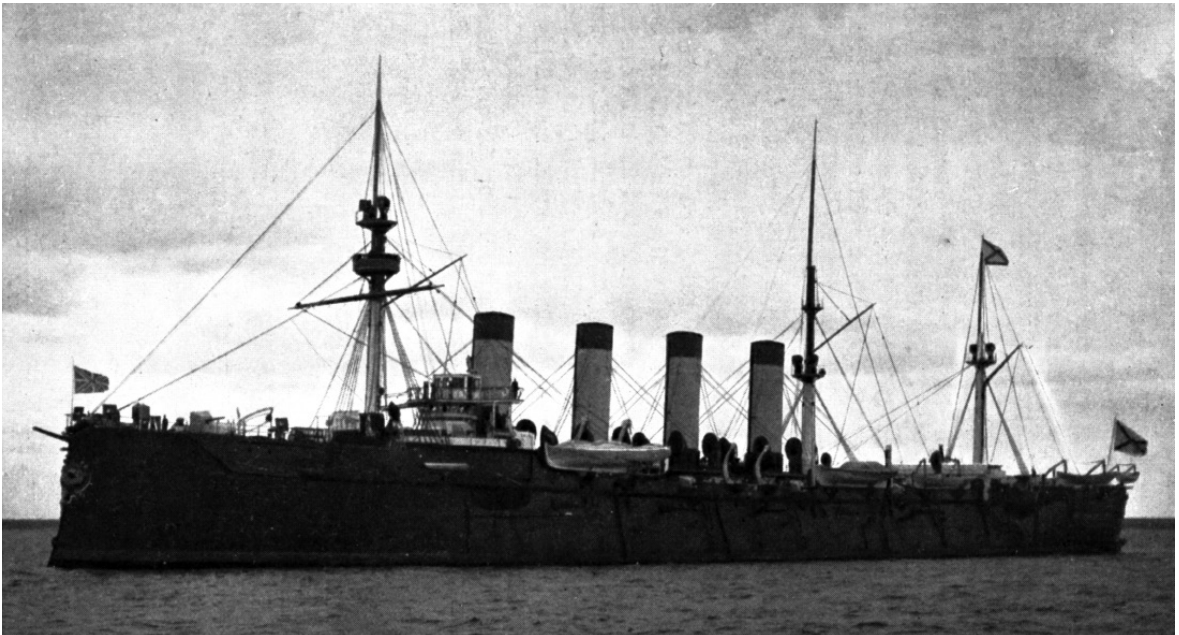
1900–01 in Vladivostok. Served in Vladivostok Independent Cruiser Squadron during the Russo-Japanese War. Sunk at the Battle of Ulsan, August 14, 1904.

Displacement	10,923 tons (11,690 actual)
Dimensions	412ft x 67ft x 26ft
Machinery	4 vertical triple-expansion engines (2 shafts), 8 cylindrical boilers, 13,250ihp; coal-fired: 1,933 tons
Max Speed	18kts (18.8 trials)
Armament	Guns: 4 × 8in./35, 16 × 6in./45, 6 × 4.7in./43, 6 × 3-pounder, 10 × 1-pounder. Torpedo tubes: 6 × 15in.
Armor	Nickel steel. Belt: 8–10.8in., deck: 3in., conning tower: 6in.
Crew	719
Shipyard	Baltic. Laid down: May 31, 1890. Launched: November 3, 1892. Entered Service: May 1895

Rossia

Named for Russia. Attended Queen Victoria’s Diamond Jubilee in 1897. Flagship of Vladivostok Cruiser Squadron 1897–1905. Participated in seven raids during Russo-Japanese War; badly damaged at battle of Ulsan. Returned to Kronstadt after the War, refitted, and served as flagship of Baltic 2nd Cruiser Brigade in World War I. Inactive during Russian Revolution. Scrapped in Germany in 1922.

Displacement	12,130 tons (12,195 actual)
Dimensions	461ft x 68ft 7in. x 26ft 2in.
Machinery	3 vertical triple-expansion engines (3 shafts), 32 Belleville boilers, 14,500ihp; coal-fired: 1,933 tons
Max Speed	19kts (19.75 trials)
Armament	Guns: 4 × 8in., 16 × 6in./45, 12 × 3in./50, 20 × 3-pounder, 18 × 1-pounder. Torpedo tubes: 5 × 15in.
Armor	Harvey steel. Belt: 6½–8in., deck: 2½–3in., conning tower: 12in.
Crew	839
Shipyard	Baltic. Laid down: June 1, 1895. Launched: May 12, 1896. Entered Service: Late 1896



Svetlana

Royal yacht for Grand Duke Alexei and Imperial family, 1899–1903. Assigned to Second Pacific Squadron in 1904. Sunk day after Tsushima, attempting to reach Vladivostok.

Displacement	3,828 tons
Dimensions	331ft 3in. x 42ft 9in. x 18ft 9in.
Machinery	2 vertical triple-expansion engines (2 shafts), 18 Belleville boilers, 8,500ihp; coal-fired: 1,000 tons
Max Speed	18kts (20.2 trials)
Armament	Guns: 6 × 6in./45, 10 × 3-pounder. Torpedo tubes: 2 × 15in.
Armor	Harvey steel. Deck: 1–2in., gun shields: 4in., conning tower: 4in.
Crew	360
Shipyard	Le Havre. Laid down: December 8, 1895. Launched: October 7, 1896. Entered Service: 1897

Rossia served as the flagship for the Vladivostok Independent Cruiser Squadron from 1897 though 1905. Its wartime battle damage was repaired in Kronstadt after the war ended. (AC)

Pallada class

***Pallada*:** Named for Pallas Athena, Greek goddess of war and wisdom. Pacific Squadron 1902–04. Torpedoed at Port Arthur, February 8–9, and at battle of Yellow Sea, but repaired both times. Sunk by 11-inch howitzers at Port Arthur, December 1904. Raised, repaired, and recommissioned by Japan 1905–08. Served as Japanese training ship *Tsugaru* 1908–20. Scuttled 1922.
***Diana*:** Named for the Roman goddess of the hunt. Pacific Squadron 1902–04. At battle of Yellow Sea, escaped to Saigon. Returned to Baltic after war. Served in 2nd Cruiser Brigade in World War I. Joined revolutionary forces in 1917, in Revolutionary navy 1917–21. Scrapped, Germany, 1922.
***Aurora*:** Named for the goddess of the dawn. Going to Port Arthur when war started; returned to Baltic. Assigned to Second Pacific Squadron. At Tsushima, escaped to Manila and interned. Returned to Baltic after war. Served in Baltic during World War I. Joined revolutionary forces in 1917. In reserve 1918. Training ship 1922–41. Disarmed during World War II, sunk

in port. Refloated and refitted as museum ship, 1945–47. Currently museum ship in St Petersburg.

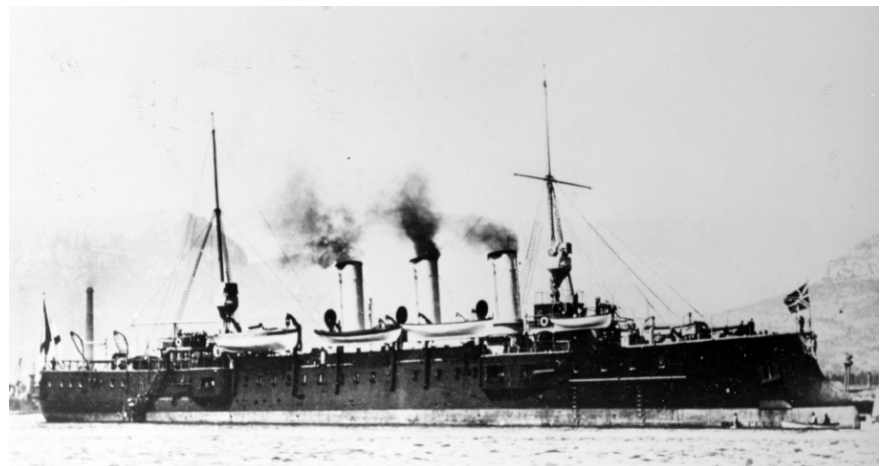
Pallada class	
Displacement	6,657–6,897 tons.
Dimensions	413ft 3in. x 55ft 9in. x 21ft
Machinery	3 vertical triple-expansion engines (3 shafts), 24 Belleville boilers, 11,600ihp; coal-fired: 900 tons normal, 1,400 maximum
Max Speed	19kts
Armament	Guns: 8 × 6.in./45, 24 × 3in./50, 8 × 1-pounder. Torpedo tubes: 3 × 15in.
Armor	Harvey steel. Deck: 2–4in., guns: 4in., conning tower: 6in.
Crew	580
Shipyard	Admiralty. Laid down: <i>Pallada</i> : December 13, 1895; <i>Diana</i> : June 4, 1897; <i>Aurora</i> : June 4, 1897. Launched: <i>Pallada</i> : August 1899; <i>Diana</i> : October 12, 1899; <i>Aurora</i> : June 24, 1900. Entered Service: <i>Pallada</i> : 1901; <i>Diana</i> : December 1901; <i>Aurora</i> : 1903

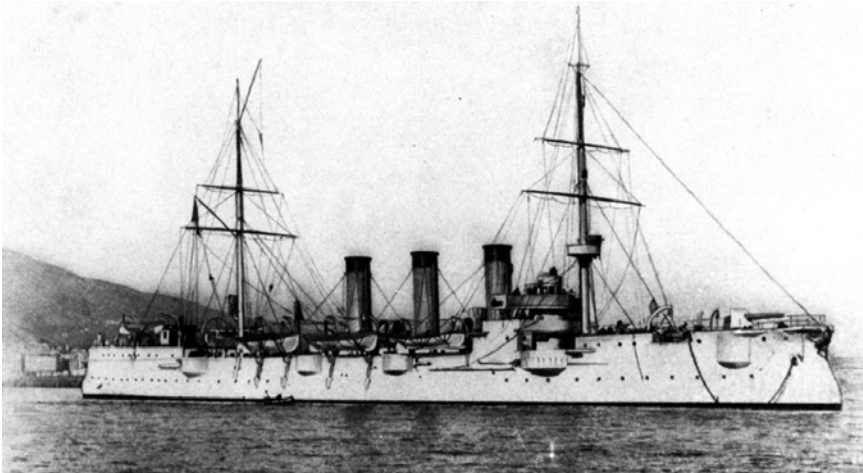
Gromboi

Russian for thunderer. Far East, 1900–05. In Vladivostok Cruiser Squadron during Russo-Japanese War. Badly damaged at battle of Ulsan. Repaired but ran aground on trial run; inactive for rest of war. Returned to Baltic after war, and refitted. Served in 2nd Cruiser Brigade in World War I. Scrapped in Germany, 1922.

Displacement	12,360 tons (12,455 actual)
Dimensions	461ft x 68ft 6in. x 26ft
Machinery	3 vertical triple-expansion engines (3 shafts), 32 Belleville boilers, 14,500ihp; coal-fired: 2,400 tons
Max Speed	19kts (20.1 trials)
Armament	Guns: 4 × 8in./45, 16 × 6in./45, 24 × 3in./50, 12 × 3-pounder, 18 × 1-pounder. Torpedo tubes: 4 × 15in.
Armor	Harvey steel. Belt: 6in., deck: 1½–2.5in, casemates: 4.76in., conning tower: 12in.
Crew	874
Shipyard	Baltic. Laid down: May 19, 1898. Launched: May 20, 1899. Entered Service: November 1900

Svetlana was officially a protected cruiser, and carried both guns and armor. In reality she was built to serve as a yacht for the Imperial Royal Family. She was hunted down and sunk by the Japanese on May 26, 1905. (USNHHC)





Boyarin was the shortest-lived and least lucky cruiser in the Russian Navy. After less than two years' service it struck a friendly mine and sank. Built in Denmark, it was viewed as an unsatisfactory design. (USNHHC)

Bayan

Named for an 11th-century Russian bard. Pacific Squadron 1903–04. Sunk in harbor by 11-inch Japanese howitzers, December 1904. Raised, repaired, and recommissioned by Japan 1905–08. Training ship *Aso* in Japanese Navy 1908–1920; minelayer 1920–30. Sunk as gunnery target 1932.

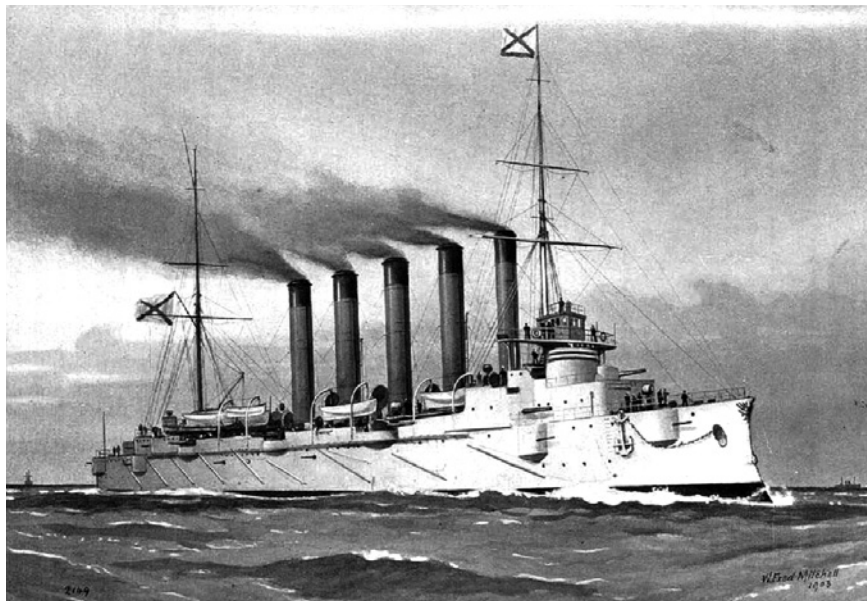
Displacement	7,725 tons (7,802 actual)
Dimensions	443ft x 57ft 6in. x 22ft
Machinery	2 vertical triple-expansion engines (2 shafts), 26 Belleville boilers, 17,400ihp; coal-fired: 1,200 tons maximum
Max Speed	21kts
Armament	Guns: 2 x 8in./45, 8 x 6in./45, 20 x 3in./50, 8 x 3-pounder, 2 x 1-pounder. Torpedo tubes: 6 x 15in.
Armor	Harvey steel. Belt: 3.9–7.9in., deck: 2in., barbettes: 6.7in., casemates: 2.4in. turrets: 5.9in., conning tower: 6.3in.
Crew	573
Shipyard	La Seyne. Laid down: March 1899. Launched: June 12, 1900. Entered Service: December 1902

Askold

Named for Askold, prince of Kiev and founder of the first Viking state in Dnieper. Pacific Squadron 1902–04. At battle of Yellow Sea, escaped to Shanghai. Pacific Fleet flagship 1908–14. In Mediterranean 1914–16 during World War I. Barents Sea flotilla 1917–18 as part of Provisional Government. Seized by Great Britain after Russian Revolution. Released in 1922 and sold for scrap.

Displacement	6100 tons
Dimensions	426ft 3in. x 49ft 3in. x 20ft 9in.
Machinery	3 vertical triple-expansion engines (2 shafts), 9 Schultz-Thornycroft boilers, 24,000ihp; coal-fired: 720 tons normal, 1,100 maximum
Max Speed	23.8kts
Armament	Guns: 12 x 6in./45, 12 x 3in./50 8 x 3-pounder, 2 x 1-pounder. Torpedo tubes: 6 x 15in.
Armor	Krupp steel. Deck: 2–4in., guns: 4in., conning tower: 6in.
Crew	580
Shipyard	Germaniawerft. Laid down: June 8, 1899. Launched: March 2, 1900. Entered Service: January 1902

The cruiser *Askold* was the fastest cruiser in the Imperial Russian Navy. Its five funnels gave it a distinctive appearance, but it was viewed as an inferior design to that of *Bogatyr*. (AC)



Varyag

Named after the Varangian or Viking people. Pacific Squadron 1901–04. Scuttled in Chemulpo after a battle with a Japanese squadron, February 9, 1904. Raised, repaired, and recommissioned by Japan 1904–07. Third-class cruiser *Soya* in Japanese Navy 1907–16. Returned to Russia April 1916, original name restored. Departed Vladivostok for refit in Great Britain. Seized by British after October Revolution. Ran aground off Ireland in 1919 and refloated. Scrapped in Germany 1922.

Displacement	6,500 tons
Dimensions	420ft x 52ft x 20ft 9in.
Machinery	2 vertical triple-expansion engines (2 shafts), 30 Niclausse boilers, 20,000ihp; coal-fired: 770 tons normal, 1,250 maximum
Max Speed	23kts
Armament	Guns: 12 x 6in./45, 12 x 3in./50, 8 x 3-pounder, 2 x 1-pounder. Torpedo tubes: 6 x 15in.
Armor	Krupp steel. Deck: 3in., turrets: 5in., conning tower: 5.5in.
Crew	571
Shipyard	Cramp. Laid down: October 1898. Launched: October 31, 1899. Entered Service: January 1901

Bogatyr class

Bogatyr: A Russian form of Hercules. Vladivostok Cruiser Squadron 1903–05. Participated in two cruiser sweeps during Russo-Japanese War. Struck a rock in May 1904; in Vladivostok awaiting repair the rest of the war. Reassigned to Baltic after the war. In Mediterranean 1908. Refitted in 1912. In Baltic 1st Cruiser Squadron during World War I. Declared for Revolutionaries in 1917. Scrapped in Germany 1922.

Oleg: Named for Oleg of Novgorod, a late 9th-century Varangian prince. Assigned to Second Pacific Squadron upon commissioning. At Tsushima, escaped to Manila and interned. In Baltic after war, under refit 1905–08. In Baltic 1st Cruiser Squadron in World War I. Declared

for Revolutionaries in 1917. Torpedoed and sunk by British torpedo boat June 17, 1919.

Bogatyr class	
Displacement	6,645 tons (<i>Oleg</i> : 6,675).
Dimensions	416ft 9in. x 54ft 6in. x 20ft 9in. (<i>Oleg</i> : 439ft 9in. x 51ft 6in. x 20ft 6in.)
Machinery	2 vertical triple-expansion engines (2 shafts), 16 Normand-style boilers, 23,000ihp; coal-fired: 720 tons normal, 1,100 max
Max Speed	23kts (23.4 trials)
Armament	Guns: 12 × 6in./45 (2x2, 8x1), 12 × 3in./50, 8 × 3-pounder, 2 × 1-pounder. Torpedo tubes: 4 × 15in. (2 submerged) (<i>Oleg</i> : 2 × 15in. (submerged))
Armor	Krupp steel. Deck: 3in., casemates: 3in., turrets: 5in., conning tower: 5½in.
Crew	580
Shipyard	<i>Bogatyr</i> – Vulkan; <i>Oleg</i> – Admiralty. Laid down: <i>Bogatyr</i> : December 22, 1899; <i>Oleg</i> : July 6, 1902. Launched: <i>Bogatyr</i> : July 30, 1901; <i>Oleg</i> : August 14, 1903. Entered Service: <i>Bogatyr</i> : 1902; <i>Oleg</i> : June 24, 1904

Novik

Russian term for a young noble or boyar. Pacific Squadron 1902–04. Participated in several sweeps from Port Arthur February through June 1904. At battle of Yellow Sea, escaped to Tsingtao, coaled, and attempted to reach Vladivostok. Trapped by Japanese in Aniva Bay, Sakhalin Island. Scuttled August 20. Raised, repaired, and recommissioned by Japan 1905–06. Japanese cruiser *Suzuya* 1906–12. Scrapped 1913.

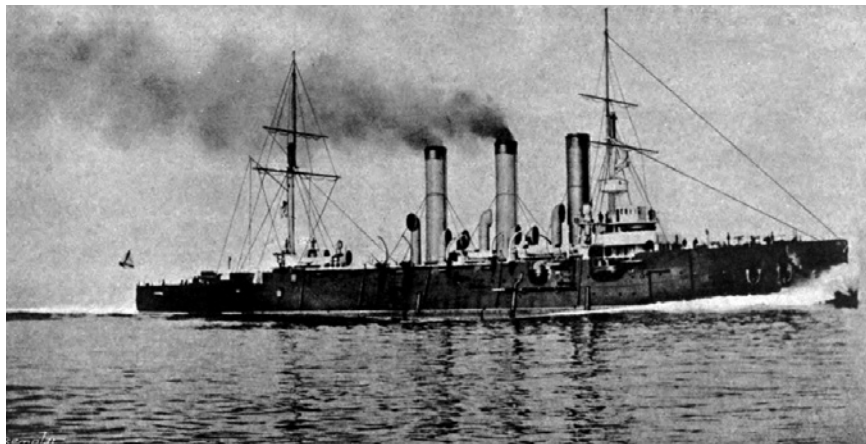
Displacement	3,080 tons
Dimensions	347ft 9in. x 41ft 6in. x 16ft
Machinery	3 vertical triple-expansion engines (3 shafts), 12 Schultz-Thornycroft boilers, 18,000ihp; coal-fired: 600 tons
Max Speed	25kts
Armament	Guns: 6 × 4.7in./45, 8 × 3-pounder, 2 × 1-pounder. Torpedo tubes: 6 × 15in.
Armor	Krupp steel. Deck: 2in., conning tower: 1in.
Crew	340
Shipyard	Schichau Shipyard, Bremerhaven, Germany. Laid down: February 1900. Launched: August 2, 1900. Entered Service: May 1902

Boyarin

A member of the highest rank of feudal Russian aristocracy, ranking just below a prince. Pacific Squadron 1902–04. Struck and sunk by a Russian mine off Port Arthur, February 12, 1904.

Displacement	3,200 tons
Dimensions	347ft 9in. x 41ft 6in. x 16ft
Machinery	2 vertical triple-expansion engines (2 shafts), 16 Belleville boilers, 18,800ihp; coal-fired: 600 tons
Max Speed	25kts
Armament	Guns: 6 × 4.7in./45, 8 × 3-pounder, 2 × 1-pounder. Torpedo tubes: 5 × 15in.
Armor	Krupp steel. Deck: 2in., conning tower: 3in.
Crew	334
Shipyard	B&W. Laid down: September 24, 1900. Launched: May 26, 1901, Entered Service: September 1, 1902

Pallada was the first of three domestically designed small protected cruisers in the Russian Navy. It was at Port Arthur when the war started, was sunk near the end of the siege, and later repaired, and served in the Japanese Navy. (AC)



Izumrud class

Izumrud: Russian for emerald. Assigned to Pacific Squadron in 1904. At Tsushima. Ran aground and wrecked off Vladivostok after battle.

Zhemchug: Russian for pearl. Assigned Second Pacific Squadron in 1904. At Tsushima, escaped to Manila and interned. In Pacific 1905–14. Sunk at battle of Penang, October 28, 1914.

Displacement	3,080 tons.
Dimensions	347ft 9in. x 41ft 6in. x 16ft
Machinery	3 vertical triple-expansion engines (3 shafts), 16 Yarrow boilers, 17,000ihp; coal-fired: 600 tons
Max Speed	24kts
Armament	Guns: 8 × 4.7in./45, 4 × 3-pounder, 2 × 1-pounder. Torpedo tubes: 4 × 18in.
Armor	Krupp steel. Belt: 1.3in.; deck: 2in.
Crew	350
Shipyard	Nevsky. Laid down: <i>Izumrud</i> : January 14, 1901; <i>Zhemchug</i> : February 1, 1901. Launched: <i>Izumrud</i> : October 14, 1903; <i>Zhemchug</i> : September 6, 1903. Entered Service: <i>Izumrud</i> : January 1904; <i>Zhemchug</i> : July 1904

Almaz

Russian for diamond. 2nd Pacific Squadron in 1904. At Tsushima, reached Vladivostok. Assigned to the Black Sea Fleet. Converted to seaplane carrier, 1915. Bolshevik headquarters ship during revolution. Seized by French at Odessa; sailed to Algiers in 1920 by White Russian forces. Seized by France in 1928. Scrapped 1934.

Displacement	2,385 tons
Dimensions	363ft x 43ft 6in. x 17ft 6in.
Machinery	Two Triple-expansion engines (2 shafts), 16 Belleville boilers, 7,500ihp; coal-fired: 560 tons
Max Speed	19kts
Armament	Guns: 6 × 4.7in., 8 × 3-pounder, 2 × 1-pounder. Torpedo tubes: 6 × 15in. torpedo tubes (6x1)
Armor	Krupp steel. Deck: 2½in.
Crew	340
Shipyard	Baltic. Laid down: October 8, 1902. Launched: June 15, 1903. Entered Service: December 1903

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Author's Note

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LOC – Library of Congress, Washington, D.C.

USNHHC – United States Navy History and Heritage Command, Washington D. C.

AC – Author's Collection

The following shipyards built for the Imperial Russian Navy:

Admiralty	Admiralty Shipyard, Saint Petersburg, Russia
Baltic	Baltic Works, Saint Petersburg, Russia
Galeryi	Galeryi Island, Saint Petersburg, Russia
Nevsky	Nevsky Shipyard, Saint Petersburg, Russia
Cramp	William Cramp, Philadelphia, Pennsylvania, US
B&W	Burmeister & Wain, Copenhagen, Denmark
La Seyne	Société Nouvelle des Forges and Chantiers de la Méditerranée, La Seyne, France
Le Havre	Forges et Chantiers de la Méditerranée, France
Germaniawerft	Germaniawerft, Kiel, Germany
Schichau	Schichau Shipyard, Bremerhaven, Germany
Vulkan	Vulkan yard, Stettin, Germany

Even though Russia was still using the Julian calendar at the time of the Russo-Japanese War, all dates are given in Gregorian Calendar. For those interested, the Julian calendar was 12 days behind the Gregorian calendar until March 1, 1900, when it fell one more day farther back owing to the leap year observed in the old calendar. All units are British because the Imperial Russian Navy used the British Imperial system during this period.

Author's Dedication

To Janet Rose – my first grandchild, my new Janet.